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Implementing Agenda 21

Report of the Secretary-General*

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> "Prudence must be shown in the management of all living species and natural resources, in accordance with the precepts of sustainable development ... The current unsustainable patterns of production and consumption must be changed in the interest of our future welfare and that of our descendants.
>
> "We must spare no effort to free all of humanity, and above all our children and grandchildren, from the threat of living on a planet irredeemably spoilt by human activities, and whose resources would no longer be sufficient for their needs.
>
> "We reaffirm our support for the principles of sustainable development, including those set out in Agenda 21, agreed upon at the United Nations Conference on Environment and Development."
>
> United Nations Millennium Declaration
> (see General Assembly resolution 55/2, paras. 6, 21 and 22)

I. Introduction

1. The United Nations Conference on Environment and Development (UNCED) was a landmark event to secure economic, social and environmental well-being for present and future generations. With the adoption of Agenda 21,[1] the Rio Declaration on Environment and Development,[2] the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests[3] (Forest Principles) and the UNCED-related conventions,[4] world leaders defined a clear agenda for sustainable development.

2. The outcomes of UNCED project a vision of development balanced between humanity's economic and social needs and the capacity of the Earth's resources and ecosystems to meet current and future needs — a powerful long-term vision. However, 10 years later, despite initiatives by Governments, international organizations, business, civil society groups and individuals to achieve sustainable development, progress towards the goals established at UNCED has been slower than anticipated, and in some respects conditions are actually worse than they were 10 years ago.

3. Some progress has been made in adopting measures to protect the environment. But the state of the world's environment is still fragile and conservation measures are far from satisfactory. In most parts of the developing world, there has been at best limited progress in reducing poverty. Some progress has been made in some areas of health, but other problems have surfaced, such as HIV/AIDS.

4. There is undoubtedly a gap in implementation, which is particularly visible in four areas. First, a fragmented approach has been adopted towards sustainable development. The concept of sustainable development is meant to reflect the inextricable connection between environment and development. Sustainable development must simultaneously serve economic, social and environmental

objectives. Policies and programmes, at both national and international levels, have generally fallen far short of that level of integration in decision-making.

5. Second, no major changes have occurred since UNCED in the unsustainable patterns of consumption and production which are putting the natural life-support system at peril. The value systems reflected in those patterns are among the main driving forces which determine the use of natural resources. Although the changes required for converting societies to sustainable consumption and production patterns are not easy to implement, such a shift is imperative.

6. Third, there is a lack of mutually coherent policies or approaches in the areas of finance, trade, investment, technology and sustainable development. In a globalizing world, the need for consistency and coherence in such policies has become more important than ever before. Yet policy on those issues remains compartmentalized, governed more by short-term considerations than the longer-term determinants of the sustainable use of natural resources.

7. Fourth, the financial resources required for implementing Agenda 21 have not been forthcoming and mechanisms for the transfer of technology have not improved. Since 1992, official development assistance (ODA) has declined steadily, the burden of debt has constrained options for poor countries, and the expanding flows of private investment have been volatile and directed only at a few countries and sectors.

8. Agenda 21 must be implemented together with the outcomes of the major United Nations conferences held since 1992, which have been particularly effective in articulating an agenda for social development and human rights. Those outcomes have come together in the development goals articulated in the United Nations Millennium Declaration (General Assembly resolution 55/2). Since then, the Third United Nations Conference on Least Developed Countries (Brussels, 2000) and the seventh meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change (Marrakech, 2001) have marked further important steps in the field of sustainable development.

9. Despite the gaps in implementation, Agenda 21 and the UNCED principles remain as valid as they were in 1992. However, the global context has changed. Globalization, the revolution in information and communication technologies, social dislocation in many parts of the world and the spread of HIV/AIDS are some of the features of the world today which need to be taken into account in strengthening implementation.

10. In the economic sphere, the success of the fourth ministerial meeting of the World Trade Organization (WTO), held in Doha in November 2001, in putting development at the centre of further trade negotiations, augurs well for the future of the trading system and the potential it offers to developing countries. The International Conference on Financing for Development, to be held in Monterrey, Mexico, in March 2002, is expected to discuss ways and means of promoting coherence and consistency in the global financial system. One of the primary objectives is to bring a development orientation to the world of finance.

11. The above-mentioned processes are some of the essential building blocks for strengthening implementation at the World Summit on Sustainable Development. The outcome of the Summit needs to draw on them and related processes to launch

new concrete programme initiatives, whose success will require strong political will, practical steps and strong partnerships.

12. Political will is the key to success because effective new initiatives will require major changes in the way policies and programmes for sustainable development are designed and implemented. Such practical steps will be needed to establish the credibility of the Summit in carrying forward the sustainable development agenda in meaningful and measurable ways. Partnerships with a variety of stakeholders are essential for ensuring the commitment of all, including those who have a direct impact on the use of resources.

13. Political will, practical steps and partnerships have to be combined with a renewed spirit of global cooperation and solidarity. One of the most important effects of the terrorist attacks on the United States of America on 11 September 2001 has been to highlight the fact that we are living in one world, and that no part of that world can afford to ignore the problems of the rest of the world. We share a common future, and we must work together to ensure our own well-being and that of future generations. The neglect of longer-term concerns today will sow the seeds of future suffering, conflict and poverty.

14. The purpose of the present report is to review progress in implementing Agenda 21 and other UNCED outcomes; provide an overview of key developments that affect implementation; and suggest policies and programmes for strengthening the implementation of the outcomes of the UNCED and related processes.

15. No single report can do justice to the myriad efforts that have been made throughout the world to implement Agenda 21. The full scope of the work done can only be appreciated through reference to all of the reports that will be submitted during the course of the preparatory process, particularly the country profiles, which will contain more detailed information on country initiatives. In addition, a series of factual reports of the Secretary-General on the implementation of Agenda 21 (E/CN.17/2001/PC/2-21) were submitted to the Commission on Sustainable Development acting as the preparatory committee for the Summit at its first session, in May 2001. There is a wealth of information in those reports that support and supplement what is contained in the present report. The reports of the regional preparatory meetings held during the latter half of 2001 contain many valuable proposals for action, some of which have been incorporated into the present report. The ministerial statements of the five regional preparatory meetings for the Summit, as well as the outcomes of other meetings that have been organized in preparation for the Summit, have also enriched the material available to the intergovernmental process.

II. Major trends and developments since UNCED

16. A major development in the world economy in the 1990s was rapid globalization, particularly in the form of increased international flows of goods, services and finance, due to a number of factors, including policy actions by Governments, both collectively and individually, to liberalize trade and capital markets, and the privatization and deregulation of economic activities.

17. Another force behind globalization was the rapid development of information and communications technologies (ICTs) and their increasingly global use.

Increased private financial flows were facilitated by global information networks, including the Internet, which drove dynamic ICT sectors, increasing employment and production in a number of developing countries, in particular in East Asia. At the same time, a large number of developing countries were unable to take advantage of either globalization or the development of ICTs.

18. Globalization and ICTs demonstrated both their benefits and their limitations for development during the 1990s. Countries and enterprises which were able to successfully adapt to the new circumstances prospered; those which were unable to do so due to a lack of technical capabilities, infrastructure or institutional capacity saw a widening gap between themselves and the rest of the world. ICTs have great potential to further the sustainable development agenda, especially if effective steps are taken to bridge the digital divide.

19. Against the backdrop of globalization and the spread of ICTs, a number of major economic events and trends affected the world economy during the 1990s. During the first half of the decade, most countries enjoyed significant economic growth, although conflict imposed great human costs and economic damage on an increasing number of countries. The former centrally planned economies experienced rapid and severe deterioration of economic and social conditions in their transition to market economies. In the developed world, the economy of the United States enjoyed a record period of expansion and served as an important engine of growth for the rest of the world economy. In Europe, a single currency region covering most of Western Europe (the European Monetary Union) was created. Japan, on the other hand, was unable to extricate itself from its decade-long recession. Overall, the world economy experienced less turbulence during the 1990s than during the 1980s, although there were important exceptions. The average annual rate of growth of gross domestic product (GDP) for the developing countries as a whole increased from 2.7 per cent in the 1980s to 4.3 per cent in the 1990s, while the rate for the developed countries declined from 3 to 2.3 per cent for the same period.[5]

20. The overall picture, however, does not capture the continuing difficulty that many countries in Africa faced during the 1990s. While economic growth in the region improved marginally, continued high population growth eroded the gains, and the gap in standards of living between Africa and other regions widened further. Furthermore, while the economic growth of the region was associated with higher levels of agricultural production, manufacturing failed to develop, leaving many countries dependent on a few commodity exports with volatile and generally declining prices.

21. In the economies in transition, GDP fell an average of 2.5 per cent per year during the 1990s, compared with growth of 1.8 per cent per year during the 1980s. Economic decline was particularly pronounced in the first half of the decade, with domestic production falling by as much as 50 per cent in three years. Many countries experienced sharp increases in poverty and unemployment and cuts in the financing of education, health, pension payments, public transportation and other social services. While countries in Eastern Europe and the Baltic States and a few countries in the Commonwealth of Independent States (CIS) grew strongly during the second half of the 1990s, other countries, particularly those in Central Asia, struggled to restore growth.

22. International trade flourished during the 1990s, although regional performance varied. Global exports grew at an average rate of 6.4 per cent to reach $6.3 trillion in 2000. Developing countries became more significant players in world trade, with their exports growing 9.6 per cent annually. Exports from Africa, however, increased more slowly, and the region's share of world trade declined from 2.7 per cent in 1990 to 2.1 per cent in 2000. The collapse of the trading arrangements of the Council for Mutual Economic Assistance at the end of the 1980s severely constrained exports from economies in transition in the first half of the 1990s. Many countries in Eastern Europe and the Baltic States, however, successfully reoriented their exports to Western Europe in the second half of the decade, and their export sectors became one of the important contributors to their robust growth. As in the case of Africa, economies in transition without a solid manufacturing base benefited little from globalization.

23. Globalization was also reflected in rapid increases in international financial flows, but these exhibited a large degree of volatility. Throughout the 1990s, the United States attracted large flows of external private capital, owing to its strong economic performance and development of innovative financial products. For at least the first half of the decade, a number of developing countries, particularly middle-income countries, attracted increasing private financial flows, with foreign direct investment showing particular strength. At the same time, these countries experienced periodic financial crises that required multilateral intervention, first in Mexico in 1995 and then in a number of East Asian and other countries from 1997 to 1999.

24. In contrast to the success of some middle-income countries in attracting private capital, the external financial position of low-income countries did not improve. These countries continued to rely primarily on official sources of external finance. Official development assistance declined significantly and, for most of the decade, little progress was made in resolving the external debt difficulties faced by many of the poorest countries.

25. Events since the terrorist attacks on the United States on 11 September 2001 have added to an overall sense of uncertainty and contributed to a global slowdown. There are concerns that the long-term goals of sustainable development will be undermined by the pressures of short-term needs. As noted by the African and Asia and the Pacific regional preparatory committees, strife and social instability have hampered the efforts of many countries to achieve sustainable development.

26. World population reached 6 billion in 2000, up from 2.5 billion in 1950 and 4.4 billion in 1980. World population is projected to reach about 8 billion in 2025 and 9.3 billion in 2050, and eventually to stabilize between 10.5 and 11 billion. World population growth reached a peak of 2 per cent per year in 1965 and has since declined to 1.3 per cent in 2000. It is projected to decline to 1 per cent in about 2020 and to 0.5 per cent in 2050.[6]

27. Demographic change has affected sustainable development in various ways. Population size, growth and age structure, and educational, health and socio-economic characteristics all have an effect on the use of natural resources, as do gender relations and migration patterns. The overall impact of those trends on sustainable development has varied from one country or one region to another. In some European countries and Japan, a key concern has been rapid population ageing, driven by low fertility levels, and the impact on pensions, health care and

other social services. As a result of declining fertility, the population of the developed countries is projected to reach a peak in about 2025 and decline thereafter, so that all of the world's population growth after 2025 is expected to occur in the developing world. In some developing countries, high population growth rates, poor health, increasing mortality due to AIDS and declining school enrolment rates have been critical demographic factors constraining development. Population movements have also at times led to deforestation and other negative environmental consequences.[6]

28. Total consumption and the pressure it exerts on natural resources and the environment depends in part on population but even more on affluence and technology. Fifteen per cent of the world's population, in the high-income countries, account for 56 per cent of total consumption, while the poorest 40 per cent, in low-income countries, account for only 11 per cent of total consumption.[7] While most people have experienced some growth in consumption in recent years, the consumption expenditure of the average African household is 20 per cent less than it was 25 years ago.[8]

29. During the 1990s, the overall poverty rate in developing countries, based on an income poverty line of $1 per day, declined from 29 per cent in 1990 to 23 per cent in 1998. The total number of people in income poverty declined slightly from about 1.3 billion to 1.2 billion. There has been substantial progress in reducing poverty through rapid economic growth in East and South-East Asia, and some progress in reducing the poverty rate in South Asia and Latin America. In sub-Saharan Africa, however, where almost half the population lives in poverty, there has been no progress in reducing the poverty rate and the number of people in poverty has increased substantially.[9] Economic growth has the potential to substantially reduce the number of people living in poverty. World Bank projections using a best-case economic scenario indicate that the total number of people living on less than $1 per day could decline to about 750 million persons by 2015.[10]

30. Somewhat greater progress has been made in other aspects of poverty, including health care, child and maternal mortality, hunger reduction, access to education, and access to safe water and sanitation. However, at least 1.1 billion people still lack access to safe drinking water and about 2.4 billion to adequate sanitation (see E/CN.17/2000/13). More than 8 per cent of children in developing countries still die before the age of five, and in some of the poorest countries one in five children die before their first birthday. There are still more than 113 million primary-school-age children in developing countries not in school, of whom 60 per cent are girls.[11]

31. Of the estimated 815 million people in the world who are undernourished, an estimated 777 million live in developing regions, 27 million in transition countries and 11 million in industrialized countries.[12] While the largest number of hungry people live in South Asia, those numbers are declining. In Africa, about one third of the population are undernourished and that number is increasing.[13] According to recent projections by the Food and Agriculture Organization of the United Nations (FAO), the global goal of reducing hunger by half by 2015 will not be met if current trends continue.

32. During the 1990s, health conditions generally improved, with average life expectancy increasing and child mortality rates declining. Notable progress towards the elimination of some major infectious diseases, such as polio, has been achieved.

Nonetheless, poor health continues to be a major constraint on development in many developing countries. Inadequate and contaminated water supplies, poor sanitation facilities, severe indoor air pollution from traditional fuels, malaria, tuberculosis and other infectious and parasitic diseases, and lack of access to reproductive health services take a high toll in death and disease. In Africa, the emergence of AIDS has devastated the young adult population, dramatically reducing life expectancy and creating enormous obstacles to economic and social development. At the same time, developed countries and some developing countries have seen increases in diseases associated with unhealthy diets, sedentary lifestyles and overweight.

33. Contaminated water, inadequate sanitation and poor hygiene cause a large proportion of ill health and disease in the developing world, leading to millions of deaths each year.[14] Malaria is endemic in 101 countries and territories, causing over 1 million deaths each year. Cholera, typhoid, viral hepatitis A, dysentery, intestinal worms, trachoma, river blindness, schistosomiasis, arsenic poisoning and dengue fever are other water-related diseases that affect millions of people in developing countries.

34. Global food production has continued to expand more rapidly than population in the last decade, with lower food prices and improved nutrition in many countries. This has been possible as a result of expansion in cultivated land and increased productivity through more irrigation, better seeds, improved and better targeted use of agricultural inputs and other improved agricultural techniques. However, some agricultural practices have led to environmental deterioration. In Africa, agricultural productivity has remained extremely low while population has grown rapidly, making many countries in the region increasingly dependent on food imports.

35. To protect and increase agricultural productivity, more sustainable agricultural techniques have been introduced, including conservation agriculture to conserve soil and water while reducing time and labour in land preparation, consuming less fuel, and reducing the need for chemical inputs. Another major success has been the development and adoption of integrated pest management techniques that have contributed to sustainable agricultural intensification while minimizing negative environmental impacts. By reducing the need for pesticide applications through the use of pest-resistant crop varieties, natural enemies and cultivation techniques, integrated pest management has increased the sustainability of farming and ecological systems at minimal cost.

36. Nonetheless, as a result of agricultural expansion to meet the growing demand for food and other agricultural products, forests and grasslands have been reduced and wetlands have been lost, reducing biodiversity and other environmental goods and services. Soil degradation affects at least 2 billion hectares (ha) and perhaps as much as two thirds of the world's agricultural lands.

37. Natural disasters, such as droughts, floods, landslides, earthquakes and volcanic eruptions, cause much human suffering and economic losses and are an important obstacle to development in vulnerable communities. Poor land management can increase the frequency and severity of natural disasters, such as floods, and poorly planned settlements and lack of emergency preparedness can greatly increase the damage done by disasters. Civil strife and war continue to cause degradation of land and water, as well as death, disease, famine, displacement and other threats to human welfare and development.[15]

38. The expansion of irrigated agriculture and growing demands for water for industrial and municipal uses have increased pressures on freshwater resources in many countries. Areas of water scarcity are increasing, particularly in North Africa and West Asia. In the next two decades, it is estimated that 17 per cent more water will be needed to grow food for growing populations in developing countries and that total water use will increase by 40 per cent. One third of the countries in water-stressed regions of the world are expected to face severe water shortages in the twenty-first century. By 2025, as much as two thirds of the world's population could live in countries with moderate or severe water stress. Salinity is a problem in many countries, and arsenic contamination of water is a severe problem in some parts of Asia, as noted by the regional preparatory committee for the World Summit on Sustainable Development for the Asia and the Pacific region.[16] It is estimated that more than half of the world's major rivers are seriously polluted (see E/CN.17/2001/PC/17).

39. The world's biological diversity remains a cause of great concern. Despite some positive trends in the number and extent of protected areas, widespread biodiversity losses continue to occur. More than 11,000 species are listed as threatened with extinction and more than 800 species have already become extinct, mostly due to the loss or degradation of their habitats. About 5,000 other species are potentially threatened unless major efforts are undertaken to reverse their population declines.

40. About 50 per cent of all marine capture fisheries are fully utilized and another 25 per cent are overfished, leaving only 25 per cent with some potential for increased fish harvests.[17] Total marine catches from most of the main fishing areas in the Atlantic Ocean and some in the Pacific Ocean reached their maximum potential years ago. Such overfishing not only reduces economic growth but also undermines the food security and livelihoods of many people in coastal areas and small island developing States.

41. The world's natural forests continue to be converted to agriculture and other land uses at a high rate. The rate of deforestation globally for the 1990s is estimated at 14.6 million ha per year, mostly in tropical developing countries. At the same time, there has been an increase in forest area in some developed and developing countries, due to both natural forest succession on abandoned agricultural land and the establishment of forest plantations, at an estimated rate of 5.2 million ha per year. That increase in forest area has helped offset deforestation in other areas, resulting in a net annual loss in forest area worldwide of 9.4 million ha (0.2 per cent of total forests). Net deforestation rates were highest in Africa and South America, whereas in Asia new forest plantations significantly offset deforestation.[18]

42. Many coastal areas, including estuaries, marshes, mangrove swamps, lagoons, sea grass beds and coral reefs, make a major contribution to marine productivity and play a critical role in protecting fragile coastal and marine ecosystems from storms. Approximately 27 per cent of reefs are estimated to have been lost due to both direct human impacts and the effects of climate change, and it is predicted that a further 32 per cent of the world's coral reefs may be functionally destroyed within the next 30 years unless urgent measures are taken.[19]

43. Scientific assessments have found new and stronger evidence that much of the global warming observed over the last 50 years is attributable to human activities. They warn of potentially devastating global warming over the coming century, with

rising sea levels and changing weather patterns, including large-scale events, such as El Niño.[20] Increasing storms, floods, drought and high temperatures could threaten the lives and livelihoods of many millions of people. Residents of small island developing States and low-lying coastal areas would be most at risk from rising sea levels. While the need to reduce fossil fuel consumption and greenhouse gas emissions to limit climate change has become more widely recognized in the 1990s, global consumption of fossil fuels continues to increase.

44. The increase in greenhouse gas emissions has been largely due to increased fossil fuel consumption, particularly for transportation, as a result of economic growth. During the period 1992-1999, world consumption of energy increased by almost 10 per cent. Per capita use remains highest among developed countries, though efforts have been undertaken to promote energy efficiency, utilize cleaner technologies and, in some cases, curb demand. Global carbon emissions doubled between 1965 and 1998, amounting to an average increase of 2.1 per cent per year, following the general trend of energy consumption. People in developed countries consumed an average of 6.4 tons of oil equivalent per year (toe/yr) per capita in 1999, 10 times the consumption in developing regions of about 0.62 toe/yr per capita (see E/CN.17/ESD/2001/2).

45. Energy consumption for transportation increased more rapidly than energy consumption for other uses in the 1990s, with petroleum accounting for 95 per cent of that consumption (see E/CN.17/2001/PC/20). Energy consumption in the transport sector is expected to continue to increase rapidly, at a rate of 1.5 per cent per year in developed countries and 3.6 per cent in developing countries. It is expected that carbon dioxide (CO_2) emissions from the transport sector will have increased by 75 per cent between 1997 and 2020, and that CO_2 emissions from aircraft will have increased even more rapidly over the same period, at a rate of 3 per cent per year.

III. Combating poverty and promoting sustainable livelihoods

46. Reducing poverty and improving opportunities for sustainable livelihoods requires economic and social development, sustainable resource management and environmental protection. Environmental degradation, resource depletion and natural disasters have a disproportionate impact on people in poverty, who also bear a disproportionate burden of disease. The struggle against poverty is the shared responsibility of all. In the Millennium Declaration, world leaders committed themselves to a number of poverty-related goals. One practical approach is to connect the sustainability agenda with the goals that world leaders have endorsed in recent years, at both the United Nations conferences of the 1990s and the Millennium Summit. The priorities identified in those forums and the priorities identified during the series of regional preparatory meetings for the World Summit on Sustainable Development provide a useful starting point for identifying areas where future concentrated attention is most required.

A. Rural poverty, sustainable agriculture and food security

47. About three quarters of the world's poor live and work in rural areas and are largely dependent on the agricultural sector for sustenance and livelihoods.

Increasing employment opportunities and food security depends, directly and indirectly, on improving agricultural productivity.

48. At the global level, agricultural production increased throughout most of the 1990s, with the average growth rate for the developing countries significantly outpacing that for the developed countries. Agricultural production stagnated at the end of the decade, due in large part to unfavourable weather conditions, with continued drought severely affecting food production in West and Central Asia, while floods reduced output in East Asia. In Central America, crop production was seriously affected by a string of natural disasters.[21] In East Africa, a severe drought, which began in 1999 and continued into 2000, devastated crops and livestock. Civil strife is a persistent constraint on agriculture in many parts of Africa.

49. Sustainable agriculture and rural development requires attention to a variety of issues, including land use, deforestation, water supplies and irrigation, desertification, mountains, biological diversity and biotechnology. In some areas, the natural resource base for food and agriculture continues to degrade and shrink due to poor management of land and water resources causing desertification. The United Nations Convention to Combat Desertification should be acknowledged as a primary tool in the fight to eradicate poverty.[22]

50. An important cause of rural poverty and unsustainable resource use is the lack of access of poor people to common property natural resources — pasture land, rivers, forests etc. — due to undefined ownership, absence of legal rights, lack of community-based institutional frameworks and social relationships between groups.

51. Scarcity and inefficient use of water are increasingly important constraints on food production for growing populations in many regions. Approximately 70 per cent of the world's exploited freshwater resources are used by agriculture. Despite progress made in increasing the efficiency of water use in irrigation systems, only 30 per cent of water supplied is actually used by crops and plants. Similar inefficiencies often exist in water use associated with intensive livestock operations. More efficient technologies are being adopted in some countries, but much more needs to be done to improve the efficiency of water use by the agricultural sector.

52. Trade liberalization can lead to efficient production and distribution of food, reducing the cost to consumers. However, there can be negative effects on food security and livelihoods for the rural poor as cheap imports compete with local producers and reduce their incomes, driving many of them further into poverty.[23] The combination of trade liberalization and subsidies for agriculture in exporting countries poses a particular problem for rural development in other countries.

53. The negative effects of trade liberalization on rural development can be avoided or minimized through a number of measures. Agricultural support measures in exporting countries can be changed from production incentives and export subsidies to income support for farmers and conservation incentives. Importing countries can diversify agricultural production by promoting agro-forestry, alternative crops and animal products with added value, and promote rural non-farm economic activities providing other employment opportunities.

54. The share of resources for agriculture and rural development in national budgets and in international assistance programmes has declined, and that reduction is far from being compensated by private sector investments. While a shift from agriculture to manufacturing and services is part of the normal process of economic

development, it is often occurring prematurely in developing countries, resulting in the marginalization of large portions of the rural population.

55. Informing, educating and training agricultural producers and workers, other users of land resources and diverse stakeholders in sustainable agriculture and rural development can help them to mobilize their own resources and undertake their own initiatives. In many cases, farmers' associations, workers' unions and other civil society groups, such as chambers of commerce and agriculture, have increased their own capacities in order to undertake collective and individual action. Such cooperation is being developed through a number of on-farm research, demonstration and training programmes.

B. Urban poverty and human settlements

56. Rural-urban migration is increasing the number of poor people in urban areas. In Africa, more than 40 per cent of urban households live in absolute poverty, while in Latin America about 36 per cent of women-headed households in cities are poor.[24]

Box 1
Waste

Rapid increases in solid waste have become a major problem for municipalities in developed and developing countries. Waste generation in Rio de Janeiro reached 8,042 tons/day in 1997, as compared with 6,200 tons/day in 1994, despite little growth in the city's population. In Norway, waste generation increased by three per cent per year in the mid-1990s, while in the United States of America the increase was 4.5 per cent per year.

Source: United Nations Centre for Human Settlements, *The State of the World's Cities 2001*.

57. Urban poverty is generally associated with slums and unsustainable dwellings. To ease the sufferings of the urban poor and promote urban development, world leaders agreed in the Millennium Declaration to achieve, by 2020, significant improvement in the lives of at least 100 million slum dwellers, as proposed in the "Cities Without Slums" initiative (see General Assembly resolution 55/2, para. 19).

58. Unsustainable human settlements or slums are mostly informal and unplanned, are often in dangerous locations and generally lack basic municipal services, such as safe drinking water, sanitation, public transport, schools and clinics, all of which may result from inadequate urban planning, lack of investment in infrastructure, speculative investment patterns or indifference to the needs of the poor. Realization of the Millennium Declaration target would require action at many levels. Access to improved housing, safe drinking water, sanitation facilities, health and education are urgent priorities for improving the lives of slum dwellers. Long-term improvements would require better city planning and attention to land rights and urban infrastructures.

59. During the 1990s, about 438 million people in developing countries gained access to improved drinking water supply. However, given the rapid growth of urban populations, the number of urban dwellers who lack access to safe drinking water supplies also increased in the 1990s, by nearly 62 million (see E/CN.17/2000/13). By the year 2025, it is estimated that about 54 per cent of the population in developing countries will reside in urban areas. The task of providing safe water and adequate sanitation services to the growing urban and peri-urban population is a major challenge.

Box 2
Local Agenda 21s

A notable initiative for sustainable development is the Local Agenda 21 programme of the International Council for Local Environmental Initiatives, which aims to increase the awareness, commitment and contribution of local authorities to sustainable human settlements and global environment management. The cooperation of the Council promotes economies of scale, learning from others' experiences and dissemination of lessons learned to as wide an audience as possible.

60. Progress in the provision of urban sanitation has been more encouraging. During the 1990s, some 542 million urban people in developing regions gained access to urban sanitation facilities, while the number of people lacking such access decreased by about 41 million people. That global trend was largely due to progress in the Asian and the Latin American and Caribbean regions.

61. The sustainability of urban development is, however, threatened by the enormous additional burden on wastewater treatment facilities and solid waste management capacities, which are already quite inadequate to cope with existing burdens (see E/CN.17/2000/13).

62. Recent years have also seen a growing concern over the disposal of hazardous wastes, which are often dumped together with other wastes, which has posed severe health hazards for poor people who survive by scavenging wastes, particularly children. Some vector-borne diseases, such as Dengue fever, are linked to poor solid waste disposal. Some cities have experienced epidemics due to poor waste management, resulting in substantial human and economic losses.

63. Although policies in some countries are promoting waste reduction, recycling and safe disposal, most developing countries are lagging behind. There is a great potential for labour-intensive waste collection with resource recovery and recycling.

64. Some progress has been made in recognizing the contributions and potential of citizens' groups, grass-roots organizations and civic leaders. Some community initiatives have created opportunities for low-income families to participate in community improvements, budget-setting, city-wide planning, disaster preparedness and other sustainable urban development activities.

Box 3
Mauritius: human settlements programmes

The National Housing Development Company has been set up by the Government for the implementation of a national housing programme in favour of the economically disadvantaged segments of the population. There is also an ambitious sites-and-services project in the pipeline targeted towards poor households. In addition, the Housing Development Certificate Scheme and the New Incentives for Residential Development Scheme have been introduced to encourage the private sector to play a more proactive role in housing and settlement development.

Source: Mauritius country profile.

65. In many countries, the infrastructure sector has undergone reforms resulting in public-private partnerships that bring urgently needed capital, allowing expansion of services to previously unserved people.

C. Demographic dynamics

66. Fertility in developing countries as a whole has dropped to just under three children per woman, about half what it was in the late 1960s, and the expectation is that it will fall further to about 2.1 children per woman, the replacement level, by 2050. In developed countries, fertility is now 1.6 children per woman, below the replacement level, resulting in population ageing and in some countries population decline. However, total world population will continue to grow, particularly in the least developed countries, whose combined population is expected to increase nearly threefold from 658 million to 1.8 billion between 2000 and 2050. The implications of rapidly growing populations for development and the environment could be far-reaching for those countries, which also have the greatest material resource constraints and the least environmental resilience.

Box 4
Philippines: population programmes

The Philippines Population Management Programme was established in 1993 in order to maintain a healthy balance between population and resources. The Philippines Population Management Programme Advocacy Plan, an inter-agency undertaking, was formulated in 1996 to guide the national population commission in its role as the lead advocacy agency for population and development.

Source: Philippines country profile.

67. Large movements of people from rural to urban areas continue in most developing countries. Rapid urbanization has led to a growing number of mega-cities that have in many cases overwhelmed local environmental resources and

spawned huge peri-urban slums. The urban share of the world's population grew from 30 per cent in 1950 to 47 per cent in 2000, and is expected to exceed 50 per cent between 2005 and 2010.[25] Urban authorities are struggling to provide infrastructure and basic social services and cope with the development and environmental impact of the large and growing population.

68. In the countries most affected by HIV/AIDS, mortality has increased, particularly among young adults, creating imbalances in the age and sex composition of populations and orphaning millions of children.

D. Health and sustainable development

69. Sustainable development cannot be achieved without addressing the causes of ill health and its impact on development. Many health problems are caused or exacerbated by air and water pollution, noise, crowding, inadequate water supplies, poor sanitation, unsafe waste disposal, chemical contamination, poisoning and physical hazards associated with the growth of densely populated cities. The World Health Organization (WHO) estimates that poor environmental quality contributes to 25 per cent of all preventable ill health in the world today. Air pollution, both ambient and indoors, including the work environment, continues to be a major contributor to respiratory and other illnesses, particularly in children (asthma and acute respiratory infections) and women and the elderly (chronic respiratory illness). Some 2.1 million people, 1.8 million of whom live in rural areas of developing countries, die every year from indoor air pollution caused by traditional biomass fuels, 80 per cent of them women and girls.

70. Poorly managed urban settlements and overcrowded housing make it easier for infectious diseases to spread and promote illicit drug use and violence. Poor health can be a major impediment to the participation of the urban poor in personal and community development efforts. Urban growth has outstripped the capacity of many municipal and local governments to provide even basic health services.

Box 5
Malnutrition/overnutrition

Nearly 30 per cent of the world's population suffer from one or more of the multiple forms of malnutrition, and almost 50 per cent of the 10 million deaths among children under five each year in the developing world are associated with underweight malnutrition. At the same time, the increased consumption of diets high in fat and sugar and low in fruit and vegetables, as well as more sedentary lifestyles resulting from industrialization, urbanization, economic development and global marketing, are having a negative impact on the nutritional status of people in developed countries and some developing countries.

Source: WHO.

71. Several hundred million people continue to be infected annually with malaria, resulting in almost 300 million clinical cases worldwide each year and more than

1 million deaths. The scale of the problem is increasing in many countries due to the deterioration of public health infrastructure, climatic and environmental changes, conflict-related human migration, widespread poverty and the emergence of drug-resistant parasites. Malaria has slowed economic growth in endemic countries in Africa by up to 1.3 per cent per year.

72. Several parasitic conditions continue to cause considerable morbidity and disability. In West Africa, however, onchocerciasis (river blindness) has been virtually eliminated in 11 countries through a programme relying on vector control and community-based drug treatment, freeing millions of people from infection by the disease and releasing millions of hectares of riverine land for resettlement and cultivation. Efforts are being intensified to monitor, control and eliminate the disease in the remaining countries of Africa and the Americas.

Box 6
Rollback Malaria Campaign

The Rollback Malaria Campaign initiated by WHO is an integrated strategy that addresses the health, environment and sustainable development interface by tackling the underlying causes of malaria and strengthening the capacity to manage, diagnose and treat the disease. However, the continued use of DDT, which is a persistent organic pollutant, to combat the disease poses environmental problems.

73. HIV/AIDS has had a devastating impact on life expectancies in some countries, reducing them to pre-1980 levels. During the 1990s, life expectancy declined by 6.3 years in the nine countries hardest hit by HIV/AIDS.[26] It is the fastest growing health threat to development today. About 36 million adults and children are currently living with HIV/AIDS, 95 per cent of them in developing countries and 25 million of these in sub-Saharan Africa. More than 12 million Africans have died of AIDS (over 2 million in a single year), and 13.2 million children have been orphaned.[27]

74. There is increasing concern about food safety, related both to chemical substances and micro-organisms. In many parts of the world, a rising incidence of food-borne disease has been evident over the past decade, due particularly to movement of animals and animal products and feeds. In addition, the direct and indirect health consequences, positive and negative, of biotechnology applications for food production are a matter of concern and assessment. While the growing trade in food brings benefits, it can also contribute to an increased dissemination of food-borne disease.

75. The reliance of more than 2 billion people in the developing world on traditional biomass energy, including firewood, animal dung and agricultural residues, is associated with indoor air pollution and a variety of health problems, including acute respiratory infections, chronic bronchitis, emphysema and other health conditions, contributing to millions of deaths each year, mostly among children and women.

76. Many of the key determinants of health and disease — as well as the solutions — lie outside the direct control of the health sector, in sectors concerned with environment, water and sanitation, agriculture, employment, urban and rural livelihoods, trade, tourism, energy and housing. Addressing the underlying determinants of health is key to ensuring sustained health improvements. There is a need for local, national and global action to address the health impacts of those broader factors.

E. Education

77. Education at all levels is a key to sustainable development. Educating people for sustainable development means not just adding environmental protection to the curriculum but also promoting a balance among economic goals, social needs and ecological responsibility. Education should provide students with the skills, perspectives, values, and knowledge to live sustainably in their communities. It should be interdisciplinary, integrating concepts and analytical tools from a variety of disciplines. Few successful working models of education programmes for sustainable development currently exist.[28]

78. One of the reasons why little progress has been made on education for sustainable development is that few financial resources have been dedicated to implementing it at any level. In many countries, however, the most important challenge still remains to provide adequate funding for basic education. Education is chronically underfinanced and there has been little improvement in the level of investment in education, either from national or international sources.

Box 7
School enrolment

Over the past 10 years, developing countries as a whole have achieved a net primary school enrolment ratio in excess of 80 per cent. However, more than 113 million primary school-age children in developing countries currently do not receive a basic school education. More people are also now entering secondary education, and the rate at which students are completing secondary education is increasing rapidly. The number of children not enrolled in school has generally declined, although the gender gap in primary and secondary education is persisting in many regions and girls remain disadvantaged. While adult illiteracy remains a major problem in many parts of the world, the number of literate adults has grown significantly, with the global adult literacy rate currently at 85 per cent for men and 74 per cent for women. However, progress has been slow in reducing disparities in the distribution of educational opportunity, as reflected by differences in education by income, gender, disability, ethnicity, and urban versus rural location.

Source: E/CN.17/2001/PC/7.

79. Experience of the last decade has shown the usefulness of tailoring education to the needs of the poor, especially with a focus on women and girls. Investments in

women's and girls' education translate directly into better nutrition for the whole family, better health care, declining fertility, poverty reduction and better overall economic performance. Yet the gap between the number of boys and girls in school remains significant, and has, in some instances, even increased. The Arab Declaration to the World Summit on Sustainable Development, which was adopted by Arab ministers for development, planning and environment at the Cairo preparatory meeting for the Summit, urged that greater emphasis be given to the education of women and to strengthening social programmes to raise the level of awareness of the importance of family planning and childcare (see E/CN.17/2002/PC.2/5/Add.3).

Box 8
Cuba: education programmes

In Cuba, the Ministry of Education is coordinating the "Programme for life", a national community-based project on family education, health and environment. The Centre for Information, Environmental Education and Management has developed an educational project entitled "Environmental mission: children and youth for sustainable development". The Ministry of Culture, with the support of the United Nations Educational, Scientific and Cultural Organization (UNESCO) is coordinating the community cultural project. In addition, there is a national environmental education strategy integrated in sectoral and provincial programmes.

80. Teacher education is a high priority since teachers can serve as agents of change in support of sustainable development. Efforts have been made since UNCED to develop international guidelines for reorienting teacher education. Progress has also been made in introducing an interdisciplinary approach into teaching and research. However, the frontiers between academic disciplines remain staunchly defended by professional bodies, resource allocation systems, career structures and criteria for promotion and advancement.

81. Non-formal education, including public information, is a key instrument for promoting sustainable development and a complement to formal education, which can be slow to change. The media and NGOs have a major responsibility to educate the public, working with other major groups and actors.

IV. Sustainable consumption and production

82. Sustainable development cannot be achieved without fundamental changes in the way industrial societies produce and consume. Since UNCED, a number of approaches have been developed to provide an operational focus for the general concept of sustainable consumption and production. Among the new approaches are cleaner production, pollution prevention, eco-efficiency, integrated product policies, "Factor 4" and "Factor 10",[29] and the decoupling of economic growth from environmental degradation.[30]

Box 9
Changes in production

In Western Europe and North America, economic development has been accompanied by structural changes in the production system, with a shift from material and energy intensive sectors to services. There has also been a shift in industrial production, from the material and energy-intensive traditional industries, such as iron and steel and petroleum refining, to electronic and electrical industries, telecommunications, data processing and advanced chemicals. That trend, coupled with energy efficiency improvements, has led to a reduction of energy intensity (per unit of GDP) of more than 25 per cent in the last 20 years. However, the improvement in efficiency per unit of production has been offset by an increase in the volume of goods and services consumed and discarded.

Source: E/ECE/AC.22/2001/3.

83. Putting into practice those approaches to changing consumption and production patterns, however, has been slow and the results limited. The ministerial statement adopted by the regional preparatory committee for the World Summit on Sustainable Development for the European region noted that although progress has been made in improving eco-efficiency in the countries of the Economic Commission for Europe (ECE) region and in decoupling environmental and economic developments, those gains have been offset by overall increases in consumption. More natural resources are being consumed and more pollution is being generated.[31]

84. Economic instruments have been increasingly used in many countries and sectors to make consumption and production patterns more sustainable. A growing range of environmental taxes and charges have been integrated into fiscal systems in a number of developed and developing countries.[32] There are a limited but growing number of tradable permit systems, including pollution emissions, water use, fisheries and land development rights. Deposit-refund schemes have been applied in some countries and play a growing role in solid waste management. There is also a small but increasing tendency towards the use of enforcement incentives, such as non-compliance fees and performance bonds. Voluntary codes and conduct can be an important tool for encouraging improved consumption and production practices.

85. While targeted subsidies can serve to promote sustainable practices, current subsidies often provide incentives for inefficient and unsustainable use of energy and natural resources. Estimates of subsidies worldwide, in both developed and developing countries, range from about $650 billion to about $1.5 trillion per year (E/CN.17/1999/2). Removal or reduction of such subsidies can contribute to sustainability while generating financial savings for Governments.

86. Owing to increased consumer awareness and concern for sustainable development, including concerns for health, working conditions and environmental impacts, the market for "green" and "fair trade" products has grown rapidly since the 1980s, particularly in developed countries. Consumer organizations and other non-governmental organizations have played an important role in increasing consumer awareness of the impacts of consumption choices. That trend is expected

to continue as young people worldwide share an increasing awareness of the "world behind the product". Other tools for promoting sustainable consumption patterns include greening the supply chain, shifting consumption from products to services, life-cycle assessments of goods and services, and responsible marketing and advertising.

87. Environmental and social product standards and certification for eco-labels have helped consumers make informed decisions, but at the same time they present challenges for smaller producers, especially those in developing countries. Some producers in developing countries have taken the growing market for environmentally sound products as an opportunity to enter new export markets, such as that for organic products. However, awareness of "green products" is not sufficient to address the more fundamental issue of changing consumption patterns. Efforts are also needed to ensure that product standards do not constitute unnecessary barriers to trade and to assist developing country exporters in meeting international market requirements.

88. Based on the work of the Commission on Sustainable Development, the General Assembly, in its decision 54/449, expanded the United Nations Guidelines on Consumer Protection to include principles of sustainable consumption. The Guidelines now constitute a comprehensive framework for action by various stakeholders to promote sustainable consumption as well as consumer protection.

A. Energy and transport

Energy

89. Energy is essential for economic growth and social equity but is also associated with air pollution and other damage to health and the environment. The constraints on the energy system over the next 50 years will be due not to the depletion of fossil fuel reserves but rather to the environmental, social and geopolitical issues raised by energy production and consumption patterns.

90. Appropriate policies and measures can promote sustainable production and consumption of energy to support economic and social development. Efforts to promote sustainable energy include shifting from coal and oil to natural gas, developing renewable energy sources and advanced fossil fuel technologies, and adopting more efficient technologies. Many Governments have introduced national policies to promote renewable energy sources, including economic incentives, research and development, improvement of institutional capabilities and innovative financing and credit mechanisms. Several countries have adopted regulatory measures, investment portfolio standards and non-fossil fuel obligations for electric utilities to promote renewable energy. However, renewable energy use remains low.

91. Significant progress has been made in developing and applying advanced fossil fuel technologies towards the long-term goal of near-zero emissions of air pollution, including greenhouse gases. The efficiency with which energy is used in industrial production, as well as in lighting, household appliances, transportation, and heating and cooling of buildings, has also improved. However, those efficiency gains have been offset by increases in the volume of production and consumption.

Box 10
World energy consumption

World energy consumption has increased significantly since 1992, and forecasts indicate that it will continue to increase at a rate of 2 per cent per year to 2020. There are some improvements in the energy mix expected, such as increased use of natural gas, a slowdown in the growth of coal consumption and increased use of renewable energy, which is projected to account for 3 per cent of total energy use in 2020, compared to its current level of 2 per cent. However, the projected overall increase in energy use to 2020 will result in increasing greenhouse gas emissions and air pollution unless major efforts are made to change current trends.

Source: International Energy Agency (IEA), *World Energy Outlook 2000* (Paris, OECD/IEA, 2000).

92. Nuclear power, which accounts for some 16 per cent of world electricity generation, is associated with a number of concerns. Challenges remain regarding safety and cost-effectiveness, particularly relating to spent fuel, radioactive waste management, transboundary impacts and the decommissioning of plants at the end of their operating life.

93. The privatization of electricity generation and distribution in both developed and developing countries has to some extent contributed to increasing efficiency and reducing waste. However, as generating capacity shifts to the private sector, regulators must ensure that sustainable development priorities are not forgotten. There are concerns over price increases and the provision of services to the poor. Policies designed to extend credit for provision of services to the poor, innovative cross-subsidy schemes and cooperative arrangements may address some of those problems and contribute to efforts to eradicate poverty.

94. Measures to improve efficient production and the use of energy for sustainable development should be coupled with steps to enhance access to affordable commercial energy. There are still more than 2 billion people in developing countries without access to modern energy, a number which has not been reduced despite national grid expansions in recent decades. That challenge needs to be addressed by means of a variety of innovative measures.

Transport

95. Transport, like energy, is an indispensable part of modernization and development. The transport sector is particularly important in the new global context since competition in international markets depends on the ability to transport goods quickly and efficiently from production facilities to consumers. But transport systems are often associated, especially in urban areas, with air pollution, land degradation and noise. Traffic congestion and accidents represent additional human and economic costs. Efforts are needed to improve the safe mobility of the world's growing population, while reducing environmental damage.

96. Transport infrastructure has important impacts on the way human settlements develop and grow. Investments in transport systems can have a positive impact for

sustainable development if they are undertaken in combination with land-use regulations that limit urban sprawl and with housing policies that respond to the transport needs of the poor. If properly designed, safe transport systems can assist in meeting social needs and contribute to enhanced economic activity with reduced environmental damage.

97. Due to improvements in motor vehicle technology and transportation systems, industrialized countries and some developing countries have substantially reduced urban smog, airborne lead and other pollution from motor vehicles. But such measures still fall short of what is needed. Carbon dioxide emissions from transport constitute an increasing share of greenhouse gas emissions. In developing countries, increases in per capita income and growth in population have contributed to a rapidly rising demand for transportation services and associated energy consumption. Still, access to transportation in many developing countries remains inadequate. In Africa, 80 per cent of all trips are still made by non-motorized forms of transport. Many countries, therefore, now have opportunities to design transport systems that contribute to sustainable development, particularly public transportation systems that provide social, economic and environmental benefits.

98. Efforts are under way in many countries to develop alternative fuels and engines. Vehicles with both reduced emissions of air pollutants and reduced CO_2 emissions are now on the market, including vehicles with hybrid engines and vehicles fuelled with compressed natural gas. Promising advances have also been made in developing zero-emission fuel-cell vehicles, but commercial viability has not yet been achieved. Other efforts to reduce air pollution and CO_2 emissions from the transport sector could, particularly in the short term, focus on improving fuel efficiency and improving mass transportation.

B. Industry

99. Industry has a pivotal role to play in promoting a variety of economic and social objectives, such as employment creation, technological innovation, poverty reduction, gender equality, labour standards and greater access to education and

Box 11
Global compact

The United Nations introduced the global compact to promote sustainable growth and good citizenship through committed and creative corporate leadership. It calls on companies to embrace nine universal principles in the areas of human rights, labour standards and the environment. It brings companies together with United Nations organizations, international labour organizations, non-governmental organizations and other parties to foster partnerships and build a more inclusive and equitable global marketplace. Several hundred companies from all regions of the world have pledged to support the global compact and are implementing the nine principles (see http://www.unglobalcompact.org).

health care.[33] At the same time, industry consumes large quantities of energy and natural resources and produces large amounts of waste and emissions.

100. In order to facilitate the introduction of cleaner, more efficient and more productive technologies, a growing number of developing countries and economies in transition, often with assistance from international organizations or donor countries, have established national cleaner production centres to assist enterprises in becoming cleaner, more efficient and more profitable.

Box 12
Environmental management certification programmes

A growing number of companies in developed and developing countries have obtained certification of environmental management systems under the ISO 14000 criteria of the International Organization for Standardization or the European Eco-Management and Audit Scheme. In addition, growing stakeholder involvement has encouraged corporate policies of social responsibility and corporate reporting on environmental and social issues. The Global Reporting Initiative is an international multi-stakeholder effort to create a common framework for voluntary reporting on the economic, environmental and social dimensions of organization-level activities, products and services.

101. Industry, often through industry associations, has also developed voluntary codes of conduct, charters and codes of good practice concerning social and environmental performance. The "corporate responsibility" movement is widening in developed countries, where firms are finding that better working conditions and more consultative forms of management result in improved economic and environmental performance.

102. Strategic alliances have been established between private-sector companies and universities and laboratories for research and development for technology innovation. Such partnerships are particularly attractive for small and medium-sized firms, since they often lack the financial resources and expertise to engage in research and development on their own. Efforts are also being made in a number of countries to promote environmental management accounting in industry in order to promote the identification and implementation of cost-effective measures to reduce resource consumption, pollution and waste without government regulation and enforcement. But much still needs to be done to promote sustainable production.

C. Tourism

103. Tourism is one of the largest and fastest growing industries in the world. Tourism is often seen as a promising growth sector in countries with a natural environment that appeals to tourists since such countries may face constraints in developing alternative sources of foreign exchange through exports. In some areas, eco-tourism provides resources to protect areas of special ecological interest. However, uncontrolled growth in tourism aiming at short-term benefits often results in negative impacts, harming the environment and society and destroying the very

basis on which tourism thrives. The tourism sector needs to be planned and managed in a sustainable manner with a long-term vision to bring economic benefits and income opportunities to host communities and contribute to poverty reduction, resource conservation and cultural preservation.

104. Small island developing States face particular challenges. The fragility of ecosystems and the limited scope for alternative development strategies of small island States make concerns for the environmental and the ecological impact of tourism particularly acute. Integrated planning can help make tourism compatible with the conservation of ecosystems and with the preservation of historical-cultural heritages and the goals of economic growth.

105. The introduction of sustainable development principles and practices into the planning and implementation of tourism operations has become increasingly common in many countries. In several countries, national or local governments have adopted or supported tourism certification systems and eco-labelling. In other countries, efforts have been made to introduce sustainability issues in tourism education and training programmes. The hotel industry has generally accepted the need to introduce environmental management systems in their operations, and in some cases has adopted such systems on a voluntary basis. Other sectors, such as tour operators and cruise lines, have also created voluntary initiatives, often with the help of the United Nations.

106. A major challenge facing the tourism sector is to more widely and effectively apply existing knowledge concerning sustainability to the planning and development of tourist facilities and to the day-to-day operations of tourism companies. Adaptation of planning, management and monitoring techniques to local requirements is necessary, guided by an understanding of the conditions, needs and development prospects of local communities.

V. Protecting the integrity of life-supporting ecosystems

107. Human activities are having an increasing impact on the integrity of complex natural ecosystems that provide essential support for human health and economic activities. An ecosystem approach to the integrated management of land, water and living resources promotes the conservation and sustainable use of resources, based on an understanding of the interactions among the elements of ecosystems, including human activities.

108. In order to improve the understanding of ecosystems and the impacts of human activities on them and to better apply the ecosystem approach for sustainable development, the United Nations, together with scientific groups, Governments, foundations and other international agencies, launched the Millennium Ecosystem Assessment in June 2001. The study will provide decision makers with an improved understanding of the status of the world's ecosystems and the impact of ecosystem changes on human livelihoods and environmental conditions so that steps can be taken to protect and restore the productivity of ecosystems.[34]

A. Integrated land management

109. Expanding human requirements and economic activities are placing ever-increasing pressure on land resources, creating competition and conflicts, in some cases resulting in unproductive or destructive use of land resources. To optimize land productivity, land use should be planned and managed in an integrated manner, taking into account linkages between socio-economic development and environmental protection. Since UNCED, many Governments have adopted policies to promote integrated management, but the pace of progress has been slow.

Box 13
UNEP and biodiversity

At the forefront of efforts to protect the world's biological diversity are the Convention on Biological Diversity,[a] the Convention on International Trade in Endangered Species of Wild Fauna and Flora[b] and the Convention on the Conservation of Migratory Species of Wild Animals.[c] UNEP provides the secretariat for the Conventions, and through the World Conservation Monitoring Centre it provides an authoritative knowledge base for the preparation of the *Global Biodiversity Assessment* (1995), a major endeavour mobilizing the global scientific community to analyse the state of knowledge and understanding of biodiversity and the nature of our interactions with it.

[a] Environmental Law and Institutions Programme Activity Centre, June 1992.
[b] United Nations, *Treaty Series*, vol. 993, No. 14537, p. 243.
[c] UNEP (092) S3, vol. I, p. 500.

110. In many countries, existing systems of land tenure and land-use planning do not generally promote sustainable land use. Difficulties in overcoming those constraints are primarily due to institutional rather than technical factors. Promotion of rural livelihoods requires improving access to land and other natural resources and increasing tenure security in a manner that is gender-responsive and environmentally sustainable. There is a need to strengthen institutional arrangements for land tenure, with the participation of civil society and local governments in the delivery of decentralized land administration services. Effective land tenure reform and land-use planning require coordination and cooperation within and among several ministries and an equitable participatory process involving local communities and multiple stakeholders.[35]

111. In spite of the obstacles and the limited progress so far, land policy reform in a number of countries is an integral part of a sustainable agriculture and rural development strategy and of national plans to combat desertification and drought. Changes in land policy offer multiple leverage possibilities for poverty reduction, including improving the status of women, preserving the rights of indigenous people, creating capital and facilitating credit, mobilizing and investing resources, controlling land speculation, and preventing the misuse and degradation of land and water resources.

112. Land reforms have been more successful and easier to implement when beneficiaries and other stakeholders participate in their design and implementation, and when there is a strong political will to carry them out. They are more likely to have a positive impact on sustainable agriculture and rural development when new landowners are provided with technical support services, credit facilities and grants during the reform process.

Desertification

113. The most critical and increasing threat to sustainable land use is desertification. It is estimated that desertification affects one quarter of the total land area of the world, or about 70 per cent of all drylands, and threatens the livelihoods of over 1 billion people in more than 100 countries. Desertification is closely linked with rural poverty and hunger. It exacerbates conditions leading to famine, migration, internal displacement, political instability and conflict.

114. The widespread nature of desertification led to the call at UNCED for the elaboration of a new legally binding international convention to combat desertification. The United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, came into force in 1996 and has been ratified by 176 States. The United Nations Development Programme (UNDP) has helped developing countries participate in the negotiations and in the development of national action programmes. The African preparatory meeting for the World Summit on Sustainable Development, held in Nairobi, invited the Summit to acknowledge the Convention to Combat Desertification as a sustainable development convention and to proclaim it as a prime tool in the eradication of poverty in Africa and in other dry and arid lands.

Mountains

115. Sustainable mountain development requires a comprehensive perspective that takes into account various aspects of sustainable development, including sustainable livelihoods and economic development, biodiversity and ecosystem management, water and land resource management and conservation, cultural diversity and heritage, traditional and indigenous knowledge, infrastructure, emergency and disaster preparedness and relief, research and information, and governance and peace. Very few countries have specifically addressed mountain issues in national laws and policies; however, the designation of 2002 as the International Year of Mountains offers an opportunity to focus national, regional and international efforts on this area.[36]

B. Forests

116. Forests and woodlands support a variety of economic and social activities and are vital to environmental stability. They provide a wide range of wood and non-wood products, as well as employment and income and essential environmental services, such as soil and water conservation, mitigation of climate change through carbon sequestration and storage, and conservation of biological diversity. Forests also support a major industrial sector, make important contributions to rural

livelihoods and provide subsistence for millions of people living in and around forests.

Box 14
World forest area

The total area of forests and woodlands in the world is estimated to be 3.9 billion ha, about one third of the world's total land area, of which 95 per cent is natural forest and 5 per cent is forest plantations. Of the total area of forests and woodlands, 17 per cent is located in Africa, 14 per cent in Asia, 5 per cent in Oceania, 27 per cent in Europe (including the Russian Federation), 14 per cent in North and Central America and 23 per cent in South America.

Source: FAO, *Forest Resource Assessment 2001*.

117. The overarching principles of sustainable forest management, contained in the UNCED Forest Principles and Agenda 21, have been further developed during the past 10 years.

Box 15
Forest management

Broader approaches to forest management are becoming more widely accepted and put into practice. Almost all countries in the world now have national forest programmes in various stages of development. Some 89 per cent of the forests in industrialized countries are managed according to formal or informal management plans, and the area of forest in developing countries under management plans is increasing. About 10 per cent of the world's forests are now under protected area status (as defined by World Conservation Union categories I to VI); 149 countries, with 85 per cent of the world's forests, are currently engaged in nine international initiatives to develop and implement criteria and indicators for sustainable forest management.

118. However, very little progress has been made towards reducing the high rate of deforestation in developing countries in tropical regions, resulting in a net loss of four per cent of the forest area in those regions between 1990 and 2000. Approximately half of the wood harvested in the world is used as fuelwood, and 90 per cent is consumed in developing countries. The total woody biomass of the world's forests is also declining, reducing the capacity for forests to mitigate climate change.

119. A common vision for the management, conservation and sustainable development of all types of forests has been promoted by the Intergovernmental Panel on Forests (IPF) (1995-1997) and its successor the Intergovernmental Forum on Forests (IFF) (1997-2000), both under the auspices of the Commission on

Sustainable Development. Those processes have resulted in nearly 300 agreed proposals for action covering a broad range of issues, including deforestation and forest degradation, national forest programmes and traditional forest-related knowledge. However, some issues remain unresolved, including finance, transfer of technology, trade and legal framework.

120. In its resolution 2000/35, the Economic and Social Council established the United Nations Forum on Forests, a permanent high-level intergovernmental body with universal membership. The Forum has a multi-year programme of work and a plan of action for the implementation of the IPF/IFF proposals for action (see E/CN.18/2001/3). To support the Forum and enhance policy coordination and international cooperation, the Collaborative Partnership on Forests was formed by 11 international forest-related organizations both within and outside the United Nations system.

121. Continued progress towards sustainable forest management globally will depend on the international community's ability to mobilize political, financial, scientific and technical support, particularly for developing countries.

C. Oceans

122. The protection of the oceans, seas and coastal areas, including their living resources, requires a multisectoral but integrated approach that addresses all dimensions of ocean-related issues. The various elements include the management and sustainable development of coastal areas, the protection of the marine environment, the sustainable use and conservation of marine living resources in both the high seas and areas under national jurisdiction, and research on critical uncertainties, including climate change. That approach, known as integrated coastal area management, has in recent years replaced sectoral approaches, which have had limited success in the past.

Box 16
Coastal areas

Human activities as well as environmental phenomena, such as climate change, floods and storms, threaten the sustainability of coastal resources. It is estimated that human activities threaten more than half the world's coasts with a high or moderate risk of degradation, with the level rising to more than 80 per cent for Europe and 70 per cent for Asia. Other factors impacting negatively on coastal ecosystems include population growth, pollution, overfishing and rising sea levels.

123. In response to more and better information on the growing threats to the world's coral reefs, several international collaborative partnerships involving Governments, international organizations and major groups have been formed or strengthened in recent years to protect reefs. Local and community-level actions, backed up by legal and normative support at the national level, are especially critical to the success of those approaches and initiatives.

Box 17
Coastal initiatives

In addition to Agenda 21, integrated coastal area management is central to the implementation of the Jakarta Mandate on Marine and Coastal Biological Diversity of the Convention on Biological Diversity, as well as to numerous guidelines, principles and standards formulated and supported by a number of United Nations agencies and other organizations.

Initiatives on coral reefs include the International Coral Reef Initiative, the International Coral Reef Action Network and the Global Coral Reef Monitoring Network.

In 1995, the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities was launched, which seeks to forge new forms of collaboration among Governments, organizations and institutions, major groups and the business community.

124. A large number of legal and voluntary agreements have been elaborated in recent years regarding sea-based as well as land-based sources of marine pollution. Problems remain, however, in the implementation of those agreements and in addressing emerging issues. The capacities of maritime administrations in many developing countries are still insufficient for the effective implementation of international instruments.

125. Marine aquaculture is contributing an increasing supply of fish and has helped lower prices. Global production of marine capture fisheries, on the other hand, has remained relatively unchanged over the past decade. The reasons for this are known: overfishing, fleet overcapacity and environmental factors. The prevalence of illegal, unregulated and unreported fishing, both on the high seas and within exclusive economic zones, remains one of the most critical problems affecting world fisheries. New management regimes and the full implementation of existing schemes are required to prevent more fish stocks from overexploitation or collapse.

126. Despite a great deal of attention and some progress in the area of responsible fisheries development and management as a result of the United Nations Convention on the Law of the Sea[37] and a number of complementary international instruments and voluntary agreements,[38] there is considerable room for improvement in their coverage and enforcement at global, regional, subregional and national levels.

127. There has also been an improvement in the understanding and appreciation of the diversity of marine species, which has led to improved management practices to reduce the risks to marine biodiversity. Fully protected reserves or "no-take areas" have seen an improvement in the number, diversity and productivity of marine organisms. But such results are limited by the fact that less than 1 per cent of the world's oceans are protected in reserves. There have also been efforts to protect marine and coastal biodiversity from the harmful effects of the expanding aquaculture industry and from invasive alien species introduced into marine ecosystems.

128. Another significant outcome of the UNCED process was the Global Programme of Action for the Sustainable Development of Small Island Developing States.[39] The regional preparatory committees for the World Summit on Sustainable Development for both the Latin America and the Caribbean and the Asia and Pacific regions called for increased recognition to be given to the economic, social and environmental vulnerability of small island developing States. The preparatory committee for the Asia and the Pacific region also called for renewed commitment to sustainable ocean and coastal development, including full and integrated implementation of relevant international agreements.

D. Freshwater resources

129. Water is a fundamental resource for sustaining life and for conserving the natural environment. Increased access to safe drinking water and adequate sanitation facilities and increased water supply for food production, industry and health purposes are essential for sustainable development. At the same time, water is required to sustain the ecological functions of wetlands and other ecosystems. The need to strike a balance among the increasing demands for water for many uses is a critical challenge facing many parts of the world.

130. The potential water problems facing an increasing number of countries can, at least in part, be attributed to a lack of management in the evaluation, provision and use of water resources. The supply-oriented approaches common in water management have aggravated inefficient allocation, distribution and use of water resources and resulted in the deterioration of water quality in many areas. Despite an increasing awareness of current and future water shortages, water is still often treated as an infinite free good, with no incentives to encourage efficiency in its use.

131. Government intervention is essential to efficient water management and distribution while meeting basic social needs. But the role of government has been shifting from one of service provider to one of providing an enabling environment for integrated water resources management and coordination of the much-needed investments in the water sector. Irrigated agriculture, particularly large- and medium-scale schemes, as well as industrial production, continue to rely upon government regulations and subsidies for the provision of low-cost water services.

Box 18
Second World Water Forum and International Conference on Freshwater

The Ministerial Declaration of the Second World Water Forum, held in the Hague in March 2000, called on all parties to work together to build partnerships for a secure and sustainable water future. The International Conference on Freshwater, held in Bonn in December 2001, called on the Secretary-General to strengthen the coordination and coherence of United Nations activities related to water, and called on the World Summit on Sustainable Development to include decisive action on water issues. The organizations of the United Nations system are preparing the first edition of the *World Water Development Report*.

132. The need to delegate water resource management to the lowest appropriate level to promote active participation from communities for more efficient and productive use of water resources is increasingly recognized. NGOs are playing their role in building community awareness and local capacities. But there is a long way to go before those capacities reach the level required.

Box 19
CO_2 emissions

The concentration of atmospheric carbon dioxide, the major greenhouse gas, has risen to over 360 parts per million from a preindustrial level of about 270 parts per million. Since CO_2 has an effective lifetime in the atmosphere of about 100 years, its global concentration responds only very slowly to changes in emissions, and about one third of the CO_2 resulting from human activities in the recent past will still be in the atmosphere 100 years from now. In addition to the increases in CO_2, the concentration of methane and nitrous oxide has increased by about 15 per cent.

133. Many watershed boundaries do not reflect sociopolitical boundaries. Nearly two thirds of the world's major rivers are shared by several States, and more than 300 rivers cross national boundaries. Water should be a factor of peaceful dialogue among countries and there is a growing tendency to view shared water resources as a catalyst for cooperation rather than a cause of tension and conflicts. International cooperation on shared water resources is critical, especially in water-scarce regions, where the upstream and downstream impacts of consumption and pollution are magnified. Establishing mechanisms for cooperation, negotiation and conflict resolution is necessary for achieving integrated water resource management. Existing bilateral and multilateral cooperation schemes can provide a sound framework for decision-making on and implementation of programmes and projects for the joint management of freshwater resources across national borders.

E. Atmosphere and climate

134. Protection of the atmosphere continues to be a major concern with respect to sustainable development. Projected impacts of climate change indicate high degrees of vulnerability among poor populations and populations in coastal areas. Increases in temperature will expand the geographic areas affected by malaria and other tropical diseases and adversely influence agricultural patterns in already vulnerable parts of the world. Rises in sea level will place low-lying coastal areas at risk from flooding, as well as cholera and other waterborne diseases. Extreme weather events are expected to increase in frequency and severity, with the burden falling disproportionately on the poor. A number of regional preparatory committees for the Summit, including the committees for the Latin America and the Caribbean and the Asia and the Pacific regions, stressed the need for particular emphasis on adaptive measures and called for increased international attention to that threat.

135. The international community has made some progress in promoting efforts to reduce greenhouse gas emissions, based on the comprehensive agenda developed at UNCED and the United Nations Framework Convention on Climate Change and its Kyoto Protocol.[40] The Kyoto Protocol, aimed at stabilizing greenhouse gas concentrations in the atmosphere, establishes emission limitations and reduction objectives for industrialized countries, amounting to aggregate reduction of about five per cent of 1990 emissions for the period 2008-2012.

136. At the sixth meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change, held in July 2001, agreement was reached on elements of an emissions trading system to allow flexibility in meeting the overall target. The agreement includes core elements for the implementation of the Buenos Aires Plan of Action, and technical and financial assistance to developing countries vulnerable to the adverse effects of climate change. Recent success in reducing the emissions of ozone-depleting substances indicates the potential effectiveness of international cooperation on matters related to protection of the global atmosphere.

Box 20
Kyoto Protocol: the Marrakech Accords

The outcome of the Marrakech conference strengthens support for the efforts of developing countries to address climate change and its adverse effects. It also provides a basis for national action by industrialized countries to ratify and implement the Kyoto Protocol. The necessary ratifications could be completed before the World Summit on Sustainable Development. The realization of the promise of the Kyoto Protocol requires strong political commitment from industrialized countries to cut emissions at home and promote investment in emission avoidance in developing countries through the clean development mechanism.

137. At the seventh meeting of the Conference of Parties (Marrakech, 29 October-9 November 2001), Governments adopted the Marrakech Accords, finalizing the operational details of the Kyoto Protocol, an outcome that is expected to open the way to further ratifications of the Protocol and its entry into force.

138. At the same meeting, the Conference of Parties also adopted the Marrakech Declaration as an input to the World Summit on Sustainable Development. The Declaration emphasized the contribution that action on climate change can make to sustainable development and called for capacity-building, technology innovation and cooperation with the Conventions on Biological Diversity and to Combat Desertification.

139. Emissions of ozone-depleting substances, and their abundance in the lower atmosphere have peaked and are now slowly declining. Total consumption of chlorofluorocarbons worldwide has decreased from about 1.1 million tons in 1986 to 156,000 tons in 1998, largely due to the effectiveness of the Vienna Convention for the Protection of the Ozone Layer[41] and the Montreal Protocol on Substances that Deplete the Ozone Layer.[42] However, while chlorine concentrations are declining,

bromine concentrations, more effective at destroying ozone than chlorine, are increasing.

Box 21
Hungary: pollution control programme

A national initiative, the cross-sectoral air pollution control programme, which was launched in 1993, gives special attention to improving information systems to ensure real-time data evaluation of air quality. It creates an integrated approach to all aspects of local and transboundary air pollution problems.

Source: Country profile of Hungary.

140. Emissions from transport, energy and industrial sectors have caused increased air pollution in urban areas and serious health impacts, particularly in countries undergoing rapid industrialization, motorization and urbanization. In rural areas of many developing countries, the use of fuelwood, crop residues, charcoal and manure for domestic cooking and heating creates severe indoor air pollution, imposing particular health risks for women and children.

141. Many cities in developed countries as well as a number of cities in developing countries have established systems to monitor air quality. In some cities, authorities react to high pollution levels with such control measures as restricting traffic, ordering certain industries to reduce pollution levels, and issuing health warnings and recommendations that congested highways be avoided.

Box 22
The cost of natural disasters

In addition to the estimated 100,000 lives lost each year due to natural disasters, the global economic cost of natural disasters is expected to top $300 billion annually by the year 2050, if the likely impact of climate change is not countered with aggressive disaster reduction measures. An estimated 97 per cent of natural disaster-related deaths each year occur in developing countries, and the economic loss as a percentage of the gross national product in developing countries also far exceeds that in developed countries. Twenty-four of the 49 least developed countries face a high level of disaster risk, and at least six of them have been hit by between two and eight major disasters per year in the last 15 years, with long-term consequences for their development. Some small island developing States are also particularly vulnerable to natural disasters.

Sources: Stockholm Environment Institute, World Conservation Union and International Institute for Sustainable Development, *Coping with Climate Change: Environmental Strategies for Increasing Human Security* (Munich Re and UNEP, 2001).

142. Progress in reducing air pollution has been achieved in North America and Europe, where a number of international agreements relating to the transboundary effects of air pollution have been adopted to limit emissions of sulphur, nitrogen oxides, volatile organic compounds, heavy metals and persistent organic pollutants. More recently, air pollution and its transboundary effects have become an important issue in many developing countries. Regional cooperation can play a positive role in reducing the impacts of air pollution.

143. Efforts to address problems related to the atmosphere and climate change have been enhanced by scientific research and assessment based on reliable and accurate data and information. Interdisciplinary cooperation in the development and provision of specialized meteorological and hydrological services for agriculture, water management, aviation and marine transport has contributed to those efforts.

F. Impact of natural disasters

144. During the past four decades, the world has witnessed an exponential increase in human and material losses due to natural disasters. The destruction of economic and social infrastructure as well as environmental damage due to natural disasters have meant an increase in economic losses by almost a factor of 10 during that period.[43] The ongoing discussion on the increase of the frequency and intensity of extreme events has focused on climate change. However, reasons can also be found in the global increase in human vulnerability due to population pressure, settlement in high-risk areas, deforestation of watersheds, degradation of vegetation and desertification. The impact of those disasters, especially in developing countries, could have been mitigated through early warning and response systems.

145. The increasing damage from natural disasters led Governments to adopt the International Strategy for Disaster Reduction (see General Assembly resolution 54/219) to promote the implementation of the recommendations emanating from the International Decade for Natural Disaster Reduction, 1990-1999. The aim of the Strategy is to mobilize Governments, United Nations agencies, regional bodies, the private sector and civil society to unite efforts in building resilient societies by developing a culture of prevention and preparedness.

146. Many small island developing States are particularly vulnerable to natural disasters, including storms and volcanic eruptions, and a single disaster can have major national social and economic impacts. A number of initiatives have been pursued at the national and regional levels, some with the support of United Nations agencies, to reduce the vulnerability of small island developing States to natural disasters.

147. Further policies and measures are needed to mitigate the consequences of natural disasters. Such policies include early warning systems, better preparedness and preventive measures. Development strategies should include policies to reduce vulnerability to disasters, based on vulnerability assessments and adaptation strategies.

VI. Institutional framework for sustainable development: the need for policy integration, knowledge-based decision-making and participation

148. Institutional and legal arrangements at the national, regional and international levels provide the overall structure for achieving sustainable development. One goal of Agenda 21 is to achieve greater cooperation and policy integration among international and national institutions in order to rationalize the legal regimes at various levels and to ensure better, more participatory and more informed decision-making.

A. National sustainable development strategies

149. Agenda 21 introduced the concept of national sustainable development strategies as a means for integrating economic, social and environmental objectives into a strategically focused blueprint for action. The Programme for the Further Implementation of Agenda 21 (General Assembly resolution S-19/2, annex) established the target year of 2002 for all countries to have formulated national sustainable development strategies. According to national reports received from Governments, about 85 countries have developed some kind of national strategy,[44] although the nature and effectiveness of those strategies vary considerably from country to country.

150. Countries have addressed the challenge of developing sustainable development strategies in different ways. Some countries have developed sectoral or thematic policies that reflect broader sustainable development concerns. Others have used conventional sectoral master plans, often prepared as parts of five-year development plans to coordinate donor involvement in a particular sector. Examples of sectoral and thematic strategies include national plans of action to combat desertification, national forest programmes and coastal zone management policies. In many of those cases, sectoral policy is a tool for complying with the requirements of international commitments and helping decision makers to achieve and measure progress towards sustainable development goals and targets.

151. The establishment in some countries of participatory institutional structures or forums, such as national councils of sustainable development or inter-ministerial commissions, has had a positive impact on consensus building in the formulation of national sustainable development strategies. UNDP, through its Capacity 21 programme, has assisted more than 40 developing countries in building their institutional and human capacities to formulate and implement national sustainable development strategies. The United Nations Environment Programme (UNEP), in creating an international cooperative environment assessment framework for the production of the *Global Environmental Outlook*, has focused on the transfer of methodologies and approaches to build capacities in national and international collaborating centres and intergovernmental organizations. That form of targeted capacity-building could be expanded and used to good effect, at both the national and subregional levels, to support national councils of sustainable development. As mandated by the General Assembly and Agenda 21, UNEP continues to provide developing countries and countries with economies in transition with policy, legal and technical advisory services, in key areas of institution-building in the field of

environment, aiming at sustainable development. More than 100 countries have received such advisory services since UNCED.

152. A number of development assistance agencies have developed programmes for assisting countries in the formulation of broad development policy frameworks and strategies. The United Nations Development Assistance Framework approach, based on the common country assessments, is one effort to bring greater coherence to United Nations programmes of assistance at the country level. Other international organizations have launched initiatives to assist developing countries in the formulation and implementation of national sustainable development strategies through partnership arrangements.

B. Implementing international legal instruments

153. International organizational and legal changes since 1992 have been substantial and represent an area of real progress in pursuing the goals of Agenda 21 and other UNCED outcomes. A number of new legal instruments, conventions and protocols have been negotiated, signed and ratified since 1992, which, along with a variety of non-binding international instruments and mechanisms concluded after UNCED[45] have amplified the international legal framework supporting sustainable development.[46] However, the creation or adaptation of the national-level legal and institutional framework needed to implement those agreements has been difficult, costly and time-consuming. While countries must comply with an increased number of treaty obligations, there is often a lack of coordination and integration in meeting the obligations. Moreover, in many cases the work is not linked directly with economic and trade policies and financing strategies. All of the regional intergovernmental preparatory committee meetings for the World Summit on Sustainable Development have called for the effective implementation of international agreements dealing with sustainable development.

Box 23
Convention coordination

The General Assembly, in its resolution 55/198 and earlier on the occasion of the five-year review of UNCED, highlighted the need for greater collaboration and synergy among the various international conventions and agreements as a means to enhancing their overall impact and effectiveness. UNEP, UNDP and the United Nations University (UNU) have sought to promote such coordination through meetings and discussions among the relevant secretariats and United Nations system agencies. Such discussions have recognized that a certain degree of coordination already exists through joint projects undertaken between several convention secretariats but that continuing effort is required in that area.

154. At the national level, law related to sustainable development has followed two general directions. One is to further develop legislation on sectoral environmental and environment-related issues by adding regulatory instruments with well defined

requirements. The other is to refocus policies to better integrate fragmented sectoral laws and regulations into a coherent framework of law, or to streamline and harmonize the regulatory requirements under separate laws and regulations. However, the absence of a framework of national laws and regulations, policy guidelines and institutional arrangements that effectively support sustainable development remains a serious gap in most countries. Addressing those problems will require legislative reform in many cases. Such reform, however, requires a strong cadre of people trained in law and institutional issues and well versed in the cross-sectoral demands of sustainable development. Few developing countries possess the trained staff needed to meet those challenges.

Box 24
Global Environment Facility

GEF was started in 1991 as an experimental partnership between UNDP, the World Bank and UNEP. GEF was later restructured, in conformity with Agenda 21, to be a permanent entity for financing global environmental actions while contributing to sustainable development. In 1994, after the restructuring, 34 countries, including 13 countries which were recipients of GEF assistance, pledged to contribute $2 billion to the GEF Trust Fund. Since then, GEF membership has grown to 171 countries, whose representatives meet in the GEF Assembly of participating States every four years. To date, GEF has approved more than 800 investment and capacity-building projects, and has allocated about $3.5 billion. Under the GEF small grants programme, more than 1,300 grants of up to $50,000 each have been provided directly to NGOs and community groups. Since the development agenda is focusing on the need to reduce poverty, to build the capacities of countries to manage and benefit from the globalization process, and to facilitate public-private collaboration, GEF is adapting to those realities, inter alia, by integrating its activities into national sustainable development programmes; strengthening environmental governance and building national capacities to manage the environment; capitalizing on information technology and media; and encouraging the active participation of private enterprises in its work and strengthening its partnerships.

155. The global and regional conventions embody international commitments which shape national actions and the country-level activities of international agencies. More broadly, the conventions, by defining both general and detailed objectives, provide a framework for focusing policy development, programme delivery, research, and data collection and analysis.

156. The complexity of international binding and non-binding instruments addressing interrelated environmental issues and their global consequences requires integrated approaches to policy formulation and implementation at both the national and international levels. This cuts across the traditional institutional boundaries. The lack of effective coordination often translates into a gap between the adoption of international environmental instruments and their effective implementation.

157. Since UNCED, the Global Environment Facility (GEF) has emerged as an important financial instrument to facilitate the implementation of the UNCED conventions. Through grants and low-interest loans to developing countries and economies in transition, GEF helps to fund national, regional and global projects that benefit at least one of four central aspects of the world's environment — climate change, biological diversity, the ozone layer and international waters — as well as local economies and societies. The GEF contribution, however, is limited to the incremental costs incurred when, for example, a country's efforts to promote energy or resource development also bring global environmental benefits. GEF has also supported measures related to land degradation, particularly for combating desertification and deforestation.

C. Information for decision-making

158. New information technologies are changing the ground rules for information flows, permitting more decentralized and locally adapted forms of information management and expanding the scope of public participation in decision-making.

Box 25
Global Environmental Outlook

UNEP will publish its third *Global Environmental Outlook* report in 2002 as a major substantive input to the World Summit on Sustainable Development, providing an up-to-date assessment of the state of the global environment and policy responses. The *Outlook* process has gathered and synthesized global and regional data and information through its 35 collaborating centres around the world. The third report takes a 30-year retrospective, from the 1972 Stockholm Conference to the Summit to be held in 2002, and a 30-year forward-looking perspective on global environmental developments and trends.

159. New avenues have been opened for preparing and presenting information in formats more easily understood by decision makers and the general public. Multimedia technologies, software packages and such tools as indicators are assisting decision makers in their sustainable development efforts.

160. Major initiatives have been launched to improve environmental observations and data collection, ranging from ozone monitoring under the Montreal Protocol and the implementation of the global observing systems to the monitoring of forests and coral reefs by non-governmental organizations.

161. Significant progress has been made both internationally and nationally in the development of indicators as tools to support national decision-making. The work programme on indicators of sustainable development of the Commission on Sustainable Development has been one example. The Economic and Social Council, for its part, has initiated efforts to harmonize and rationalize basic indicators. Considering those and other efforts to develop indicators in various fields, the Statistical Commission has commissioned a technical review of all conference indicators and is working on proposals for a limited set of such indicators. The

follow-up process to the Millennium Declaration has also led to proposals for a set of key indicators. A number of regional meetings in preparation for the World Summit on Sustainable Development have emphasized the importance of national, regional and international development and the implementation of indicators of sustainable development. Countries with similar forest conditions have come together in nine regional processes on criteria and indicators of sustainable forest management, involving some 150 countries that represent 85 per cent of the world's forests. Those forest indicator processes have now been ongoing for more than eight years and are well advanced in developing and using indicators at the national and forest management unit levels.

Box 26
Integrated Global Observing Strategy

The Integrated Global Observing Strategy links space-based and ground-based observations. Supporting technologies, such as geographical information systems, satellite positioning systems, photogrammetry, artificial intelligence and neural networks, are enhancing satellite-based information systems to provide services to user communities. The seamless integration of satellite-based services, together with conventional services, through the World Wide Web, will provide information to users in a format and style most useful to them. But there is an urgent need for human resource development and for scientists from different disciplines to work together to understand and implement scientific solutions to support sustainable development.

162. Earth observation from space is a valuable technological tool for understanding the Earth. Such observations have provided long-term consistent measurements of key variables for studying the state and variability of Earth's ecosystems. The observations provide a basis for rational action at the global, regional, national and local levels. Global phenomena, such as the greenhouse effect and El Niño, jostle for attention with regional problems, such as acid rain, and local problems, such as deforestation and soil erosion. Satellite remote sensing has provided vital information on the environmental impacts, quantity and quality of resources, as well as inputs for integrated development planning for both rural and urban areas. The launching of more than 230 instruments on more than 70 satellites over the next 10 to 15 years, with calibrated sensors providing a wide variety of data, will provide an opportunity for scientists to understand the complex interactions between various components of the Earth system.

163. The rapid and continuing progress in information and communication technologies has amplified the importance of closing the digital divide between the haves and have nots in the information revolution and the importance of educating users of the new technologies to enable them to translate data into information and information into knowledge. Parts of the world without the infrastructure to connect to the new global information and communication networks and people without access to education in the new technologies are being left behind. The importance of closing the digital divide is particularly urgent considering the potential of the new technologies to reach out to even the remotest areas, empower civil society groups

and enhance their participation. Those technologies represent a powerful tool for the provision of public services, education and employment opportunities. Countries in both the developed and the developing world are giving increasing priority to investments in the necessary infrastructure, enabling them to benefit from the information revolution.

164. In November 2001, the United Nations Task Force on Information and Communication Technology was launched. The Task Force aims to mobilize the joint efforts of Governments, the private sector, non-governmental organizations, the scientific community, foundations and the United Nations system to harness the power of information and communication technologies for development. It aims to generate a new impetus and to mobilize new efforts and policies and new partnerships for bridging the digital divide and using the potential of the information revolution to achieve internationally agreed goals. Its work will support other initiatives, including those of the summit of the Group of Eight Major Industrialized Countries, in the area of information and communication technology.

D. Participation of major groups

165. The period since UNCED has seen the increasing influence of civil society in decision-making, which is most evident in the numerous local and national Agenda 21 efforts and the national sustainable development strategies, programmes and action plans that have been developed in many countries. In the implementation of such strategies, programmes and action plans, civil society groups have played an important role. The private sector has also been important in the implementation of sustainable development objectives through its investment and technology decisions.

Box 27
Participation of major groups

Participation generates shared values, mutually reinforced commitments, joint ownership and partnership, which are crucial to achieving sustainable development. The increase in major group participation has been a key area of success in the post-UNCED period. Agenda 21 follow-up has been more participatory, open and accessible to a broad range of non-state actors. During the post-UNCED decade, governmental and non-governmental actors, individually and in partnership, have experimented with numerous participatory practices and have created important precedents and approaches.

166. At the local level, the most successful umbrella for participation has been the local Agenda 21 initiatives, which today exist in over 3,000 communities of varying sizes, from villages to major metropolitan areas, around the world.[47] The strength of local Agenda 21 initiatives has been their multi-stakeholder approach to local decision-making, the identification of priorities, finding solutions and implementation.

167. At the national level, national councils of sustainable development have been established in many countries; they are often multi-stakeholder consultative or

advisory bodies that promote participatory problem solving, consensus building and implementation. Their impact is not easily measured since their role is largely advisory rather than directly affecting decision-making. However, in countries where such councils or similar bodies exist, more action on sustainable development has been noted.

Box 28
Multi-stakeholder dialogues of the Commission on Sustainable Development

In 1998, the Commission on Sustainable Development introduced multi-stakeholder dialogues into its annual sessions. The two-day dialogue, as an integral part of the session, brings together representatives of the business community, trade unions, local authorities, the scientific community and NGOs for an exchange of views with Governments. A topic for each year's dialogue is selected from the Commission's agenda, and each stakeholder group prepares a "dialogue starter" paper as a basis for the discussions. Multi-stakeholder dialogues are also planned as part of the World Summit on Sustainable Development and its preparatory meetings.

168. At the international level, the Commission on Sustainable Development has pioneered innovative participatory practices, and its efforts have raised the overall standards and expectations for participation within the United Nations system as a whole. The Commission is considered a model for an open, participatory and transparent intergovernmental process. Among other things, it initiated multi-stakeholder dialogues as part of its annual meetings. The dialogues have shown that consultations between Governments and a broad range of stakeholder groups on sustainable development issues are not only feasible but also highly useful and productive. The Commission's participatory practices are already being emulated by other intergovernmental bodies.

169. While those successes are important, there are several shortcomings. The level of participation of women at all levels is still relatively low, and the level of participation at the international level is not adequately geographically balanced or adequately financed. As a result, the majority of the voices that are heard are those who can afford to participate and have ready access to the process. At the national level, few countries provide incentives to non-governmental actors to participate, limiting their contributions to the national process.

170. An often-observed shortcoming, particularly at the national and international levels, is that stakeholder participation is rarely allowed in actual decision-making. Moreover, participation at those levels is often based on temporary and ad hoc rather than permanent and reliable mechanisms and procedures. A strengthened sense of ownership of the decisions taken among participating stakeholders would help to implement many decisions relating to sustainable development.

171. Partnerships among major groups have become more common since UNCED, including productive relationships between NGOs and business. Such partnerships now involve dozens of multinational companies and NGOs, focusing on both social

and environmental objectives. Those partnerships are changing strategies and practices in both the business and NGO sectors, with important implications for future sustainable development efforts and broader coalition and partnership-building. The partnerships seem to work best when they are based on a common and specific goal, shared risks and benefits, sound information, mutual accountability, transparency in the eyes of the public and respect between partners for each other's differences. However, despite the examples of successful partnerships the number of companies and communities engaged in such activities remains small, and there are not many examples of partnerships between civil society organizations and businesses in developing countries.

172. With increasing opportunities for networking and information-sharing among major groups, the demands of major groups to influence or participate actively in decision-making has also increased. The development of rapid and inexpensive communication within and among communities, activist groups, interest groups, think tanks and others around the world has greatly increased the ability of groups with commitment and energy but limited resources to make their views felt. That trend implies significant change in the way in which political and economic institutions take public action.

E. Formulation of common responses within the United Nations system

173. Sustainable development has increasingly provided the overarching framework for United Nations system activities at the global, regional and country levels. In the past decade, virtually every United Nations body has adopted new policies and strategies to promote sustainable development. Efforts are being made to incorporate sustainability principles, objectives and tools into programme planning and project implementation.

174. The United Nations system has grappled with the problem of system-wide coordination since its founding without reaching any ideal solutions. Successful coordination and cooperation among United Nations organizations, agencies and programmes in important sectoral areas, such as energy, water, forests and oceans, have contributed to the strengthening of programmes in those areas and provided deeper insights into the inter-linkages between the social, economic and environmental dimensions of human activities. It has also resulted in improved analysis for policy-making and the identification of technical cooperation needs. Still, an important challenge remains to ensure better linkages between inter-agency work at the global level and regional and national implementation. The Collaborative Partnership on Forests, established in connection with the United Nations Forum on Forests process, provides a promising example of inter-agency cooperation.

175. The influences of sustainable development strategies on policies and programmes within each organization have been both internal and external. Shifts in national priorities have changed the demands on international organizations for policy and programme services. As a result, United Nations bodies have adopted new policies to support sustainable development and have established evaluation programmes to review their effectiveness. National commitments made in international conventions provide a focus for international programmes and for

services at the country level. The adoption of national sustainable development strategies has facilitated the coordination of programmes among international agencies. In addition, through the participatory approach to sustainable development, international institutions interact with a broader range of partners, becoming more accessible to major groups and more responsive to their concerns.

176. At the intergovernmental level, in accordance with the mandate provided by Agenda 21, the Commission on Sustainable Development has served as the key forum for high-level policy dialogue on sustainable development. Its mandate is to monitor the follow-up to UNCED, including implementation of Agenda 21 and review linkages within and beyond the United Nations system, including with conventions and non-United Nations intergovernmental bodies. Supported by the secretariats of almost all bodies of the United Nations system, who act as task managers for specific thematic areas of Agenda 21, the Commission has been increasingly successful in promoting high-level policy dialogue among ministers and other senior policy makers responsible for a range of sectors, including finance and development cooperation, as well as natural resource and environment sectors. It has firmly established itself as an intergovernmental forum in which the multisectoral dimensions of sustainable development can be discussed. It permits an overview of coordination among international agencies and their overall impact in relation to UNCED objectives.

177. Further efforts are still needed to realize the full potential of the Commission on Sustainable Development to improve intergovernmental decision-making and to fully integrate the multisectoral dimension of sustainable development. There is also a need to strengthen and — where necessary — reform the governing structures and decision-making processes of international institutions that deal with the economic, social and environmental aspects of sustainable development. An important challenge for the Summit is to provide direction for a stronger and more coherent system of global governance for sustainable development.

VII. Means of implementation

A. Finance

178. Agenda 21 recognized that the implementation of the sustainable development programmes it called for would require a substantially increased effort, both by countries themselves and by the international community, including substantial new and additional resources.

179. ODA flows since UNCED have fluctuated considerably, with an overall downward trend from $58.3 billion in 1992 to $53.1 billion in 2000.[48] The average ODA flows from member countries of the OECD Development Assistance Committee (DAC) as a proportion of their gross national product (GNP) fell from 0.35 per cent in 1992 to 0.22 per cent in 2000. Only five countries (Denmark, Luxembourg, the Netherlands, Norway and Sweden) met or exceeded the 0.7 per cent aid target in 2000.

180. There have also been changes in the allocations of ODA among recipient countries. During the 1990s, some assessments of aid effectiveness concluded that aid was effective in some national policy environments but not in others. As a result,

there have been sharp cuts in ODA to some countries but only modest cuts to countries whose policies were considered by donors to be more conducive to aid effectiveness. Most of the least developed countries suffered a decline in ODA of at least 25 per cent, and seven countries of them, all in Africa, saw ODA reduced by more than 50 per cent.[49]

181. There has also been a shift in the allocation of ODA among sectors. In the 1990s, aid shifted from commercial sectors, such as manufacturing and telecommunications, to health, education and other social services.[50] That change in ODA allocation is a reflection of a stronger orientation of donors to poverty eradication as well as of liberalization and privatization trends in the 1990s. OECD/DAC members also adopted a recommendation on untying ODA to the least developed countries with a view to increasing the effectiveness of aid.

182. ODA allocation to the conservation and sustainable management of natural resources has been marked by uneven progress in the last decade. While commitments to the protection of freshwater resources and land resources have increased, ODA for the sustainable development of oceans and seas, protection of the atmosphere, sustainable agriculture and combating deforestation have declined. The share of ODA to those areas fell to 17 per cent in 1999, down from 25 per cent in 1996.[50]

183. The 1990s witnessed rapid increases in foreign direct investment (FDI), which continued into 2000, as well as high volatility of foreign portfolio investment and international bank loans. Net FDI flows to developing countries grew steadily through the 1990s to reach $120 billion in 2000, up from $30 billion in 1992.[51] FDI flows, however, remained highly concentrated, with 10 developing countries receiving 80 per cent of total FDI flows to the developing world.

184. While FDI flows to developing countries have grown steadily, portfolio investment flows and bank flows have shown great volatility. Net portfolio investment in developing countries reached a peak of $91 billion in 1994 and then fell to $25 billion in 1998, before recovering somewhat in 1999 and 2000. Other private flows to developing countries, primarily bank lending, have fluctuated from net inflows of $26 billion in 1992 to net outflows of $27 billion in 1994, to inflows of $25 billion in 1995, to outflows of $147 billion in 2000.[51] That volatility of financial flows is clearly an obstacle to sustainable development in developing countries.

185. The increasing importance and the further potential of external private capital flows as a source of investment, together with pressure from international financial institutions, have led Governments to improve macroeconomic stability, liberalize financial and trade markets and introduce a national policy environment favourable to foreign investment. In a number of countries, however, the liberalization of trade and financial markets has undermined the competitiveness of domestic producers and increased financial volatility, without substantially increasing investment inflows, exports or economic growth.

186. Unsustainable debt remains a major obstacle to development in many countries. While the heavily indebted poor countries (HIPC) initiative of the World Bank and the International Monetary Fund (IMF) has begun assisting some countries in addressing the problem, further efforts are needed to eliminate the unsustainable debt of those and other countries. As of November 2001, 24 countries are benefiting

from HIPC relief, with several others in preparation.[52] The requirement for HIPC beneficiaries to develop poverty reduction strategy papers should help to integrate poverty reduction policies into national sustainable development strategies.

187. To overcome the serious lack of financial resources for sustainable development and the implementation of Agenda 21, stakeholders at various levels have launched diverse innovative initiatives aimed at mobilizing additional resources, both from domestic and international sources. Notable examples at the international level are the Global Environment Facility and the Multilateral Fund under the Montreal Protocol. The clean development mechanism of the Kyoto Protocol has the potential to be an effective market instrument. Discussions are currently under way in various forums to explore ways to further strengthen such financial mechanisms and mobilize additional resources for sustainable development in developing countries.

188. At the national level, some countries have introduced environmental taxes and charges, tradable permit systems and environmental funds. The reduction of subsidies for unsustainable resource consumption in many countries has also released financial resources for sustainable development activities, while reducing incentives to over-consumption of resources.

189. Recent years have also witnessed a renewed emphasis on microfinance. Microfinance institutions provide small-scale loans to low-income clients through group lending or individual loans at interest rates that cover operational costs. Group lending has promoted repayment performance. In many cases, such institutions are also effective in reaching women.

B. Trade

190. Trade is an important factor in economic growth and sustainable development, particularly in small countries, and export-oriented development strategies have become the dominant approach in recent years.

191. World trade in goods and services has doubled over the last decade. Although the developed countries remain the main world traders, the share of developing countries in total world trade has steadily increased to about 30 per cent. Those developments have to be kept in perspective, however, because developing countries have been limited in their participation due to imbalances in the global trading system. In addition, the extreme price movements in commodity markets and a decline in commodity prices during the second half of the 1990s have been a serious obstacle to development in many countries, in particular the least developed countries.

192. While many developing countries have liberalized their trade regimes in recent years in order to promote development, that has not always resulted in improved access to developed country markets. Furthermore, economic reform in developing countries and improved access to developed country markets do not, by themselves, ensure greater export revenues and increased participation in international trade. The development of export industries also requires an enabling framework, including transport infrastructure, efficient administrative procedures and structures, and trade-related financial services. Since UNCED, there has been increased recognition of the usefulness of integrated assessment of national trade policies.

193. Although the dependence of developing countries on commodity exports has declined in recent years, many developing countries, in particular least developed countries, remain highly dependent on a few commodity exports. For those countries, the volatility and general decline in commodity prices are a major obstacle to sustainable development, making it difficult for them to use their most important export sector as an engine to generate resources for sustainable development. Further international cooperation is required to address the problems of the commodity-dependent countries, including international assistance for economic diversification and sustainable resource management.

194. There is also a need to strengthen capacities in developing countries to respond to food safety and environmental requirements in international markets. While the majority of market-access problems are not related to environmental protection, the increasing number and variety of environmental regulations and the frequent changes made to them cause problems, especially for smaller producers. At the same time, niche markets for environmentally preferable products, such as organic agricultural products, may create new trading opportunities for developing countries, and developing countries should be supported in their efforts to enter such markets.

195. Completion of the work programme adopted at the Fourth WTO Ministerial Conference, held in Doha, Qatar, in November 2001, is of great importance. It includes negotiations aimed at reducing or eliminating tariffs, tariff peaks, high tariffs and tariff escalation, as well as non-tariff barriers, especially on products of export interest to developing countries. Further liberalization in agriculture, through improvements in market access, reductions and eventual phasing out of export subsidies, as well as substantial reductions in trade-distorting domestic support measures, are a key priority.

196. The work programme can contribute significantly to ensuring mutually supportive trade and environment policies. It includes negotiations on certain trade and environment issues and the continuation of the work of the WTO Committee on Trade and Environment, in particular the identification of any need to clarify relevant WTO rules. The Committee will also serve as a forum to debate developmental and environmental aspects of the negotiations and to help ensure that the objectives of sustainable development are appropriately reflected. In that process, there is a need to take full account of the needs of developing countries and the principle of common but differentiated responsibilities.

197. An issue of continuing concern is the marginalization of some developing countries, in particular least developed countries, in global trade. The Programme of Action for the Least Developed Countries for the decade 2001-2010 adopted at the Third United Nations Conference for Least Developed Countries (Brussels, May 2001) needs to be fully implemented. It seeks to arrest and reverse the continued socio-economic marginalization of least developed countries, improve their share in international trade, foreign direct investment and other financial flows, and create an enabling environment for them to be able to benefit from globalization and minimize its adverse consequences. While some progress has been made through the European Union's Everything but Arms initiative and the United States African Growth Opportunity Act, further action is required.

198. To assist developing countries in deriving benefits from trade, adequate funding for trade-related technical assistance, such as the inter-agency Integrated

Framework for Trade-Related Technical Assistance and the Joint Integrated Technical Assistance Programme, is essential. There has also been increased recognition of the need for technical assistance on trade and environment. The UNEP/UNCTAD United Nations Conference on Trade and Development Capacity Building Task Force for Trade, Environment and Development can play an important role in that regard.

C. Transfer of environmentally sound technology

199. The need for favourable access to and transfer of environmentally sound technologies, in particular to developing countries, was recognized in Agenda 21. New technologies to address many of the problems of sustainable development exist in virtually all sectors of the economy. Their transfer to and diffusion in developing countries, however, have been constrained in particular by:

(a) Lack of information on their availability, terms of transfer and performance;

(b) Inadequate domestic and foreign investment for their acquisition and use;

(c) Intellectual property rights regulatory frameworks that do not necessarily promote their use;

(d) Lack of capacities among the users to adapt, operate and maintain those technologies.

200. The bulk of technology transfer takes place in the private sector through business-to-business transactions. While it is difficult to identify foreign direct investment that is directly oriented towards transferring environmentally sound technologies to developing countries, the rapid increase in the 1990s in FDI and business alliances for production and distribution appears to have also increased technology transfer to at least a limited number of developing countries, particularly in East and South-East Asia. The countries of Latin America and the Caribbean, at their regional preparatory meeting for the World Summit on Sustainable Development, emphasized that the region had made progress in promoting a more favourable climate for technology transfer and technical knowledge, through, inter alia, the protection of intellectual property rights, but that developed countries, for their part, had not adopted effective measures for ensuring transfer of the most appropriate technologies.[53]

201. Small- and medium-sized enterprises (SMEs) in developing countries have particular problems in acquiring environmentally sound technologies. SMEs typically do not have the capital needed to invest in modern pollution control equipment or cleaner production technologies. The private sector has often concentrated its foreign investment efforts and expertise in large projects, primarily because large projects are easier to manage than investment in a large number of smaller projects.

202. The public sector therefore plays an important role in improving access by SMEs to finance for environmentally sustainable technologies, including through fiscal and financial measures. Fiscal measures, such as tax incentives for "green" investments, can be very effective for "kick-starting" a market, but they are expensive and their use needs to be carefully controlled.

203. Various forms of public-private partnerships have been applied, with the general objectives of leveraging public resources, mobilizing private capital and harnessing market forces for development. Public funding for technology-related activities has been used to support feasibility studies and the design of bankable projects with a strong technology transfer component, thus promoting the mobilization of private capital for the implementation of the projects. Build-operate-transfer arrangements have also been used as an alternative to foreign borrowing or investment from the public budget for the development of infrastructure. Such arrangements have particular potential for infrastructure investments in various areas, for example power and water-supply systems. The adaptation and absorption of new technologies can be supported by the "technology triangle" of research institutions, private sector companies and government. But, progress in addressing the constraints to transfer of environmentally sound technologies has not been very encouraging.

Environmentally sound management of biotechnology

204. Ten years after UNCED, biotechnology has developed into an economically important industry, but its potential for sustainable development has not been fully realized. In some industrialized countries, biotechnology is a profitable field that plays a strategic role in enhancing national competitiveness in the global economy, but concerns about the risks of biotechnology are growing.

205. For the developing world, biotechnology has not met earlier social and economic expectations, which is not surprising considering that the capital requirements for product development and regulatory approval are increasing beyond the reach of all but the most advanced industrial economies.

206. Estimates suggest that product development costs for industrial biotechnologies may amount to $20 million over a period of two to five years, and for biopharmaceuticals up to $300 million over a period of seven to 14 years. Investment capital for the development and commercialization of biotechnology has been available mainly through private venture capital in the advanced industrialized countries. As a result, innovation in biotechnology has been dominated by the private sector and is increasingly proprietary, thus limiting access by the large majority of developing countries. Only a few of the larger developing countries have an incipient biotechnology capacity. For the large majority of developing countries, United Nations agencies and national and international research centres remain the main conduits for the transfer of biotechnologies to developing countries.

207. Biotechnology raises important ethical and social issues, including the equitable distribution of benefits, biosafety and responsibility to future generations. The impacts of biotechnology cannot easily be confined within national boundaries and will often differ among countries depending on local economic, social and ecological situations. The Cartagena Protocol on Biosafety of the Convention on Biological Diversity, which was adopted in January 2000, provides an international regulatory framework to reconcile the demands of trade and environmental protection with respect to the rapidly growing biotechnology industry. The Protocol is the first multilateral environmental treaty that institutionalizes the precautionary principle and establishes an advance informed agreement procedure to ensure that countries are provided with the information necessary to make informed decisions regarding the import of products derived from modern biotechnology.

Box 29
Human Genome Project

The publicly funded Human Genome Project and the commercial Celera Genomics Corporation jointly announced success in listing the sequence of the 3.2 billion bases in human DNA in 2000. However, decoding the full DNA sequence and making use of it will take several more years, bringing the issue of gene patents to the fore. The genome project offers an excellent example of technological cooperation, with participating laboratories in at least 18 countries. The Millennium Declaration includes a commitment to ensure free access to information on the human genome sequence. In 1997, UNESCO members unanimously signed the Universal Declaration on the Human Genome and Human Rights, stating that the human genome in its natural state must not give rise to financial gains, and that no research concerning the human genome should prevail over respect for human rights.

D. Science and capacity-building

208. Ten years after UNCED, a major obstacle to sustainable development for much of the world remains the lack of scientific and technical capacity. With the advent of modern telecommunications and increased global trade and competition, scientific knowledge is the main driving force of growth, innovation and economic productivity. It goes to the heart of the development process. Dramatic advances in medicine, safe water and sanitation, energy, food production and processing, high-speed transportation and communications, and many conveniences that add to the quality of daily life — all owe their existence to the discoveries and practical applications of science. But such developments have generally occurred independently of concerns for conservation and wise management of the global biosphere, and some new technologies may pose challenges to the achievement of sustainable development and global security.

209. There is a critical role for science and scientists to play in all aspects of the sustainable development agenda. A concept of "new national systems of innovation" is emerging, calling for more interaction among universities, research institutions, government agencies and the private sector. The result should be an improvement in the scientific basis of policy-making at all levels.

210. A number of international scientific research programmes are addressing the challenging scientific questions raised by global change and human pressures on climate, marine and terrestrial geo-systems and biodiversity. An especially urgent issue is the link between ecosystem health and human health. Global climate changes are already creating new health risks, and the fragmentation of landscapes is allowing diseases that were formerly confined to wilderness areas to become part of the disease environment with which humans and other living things must contend. Climate change scenarios indicate that global and local observing systems should be better integrated and strengthened to be more effective.

211. Sustainable development ultimately rests on national and local capacity for policy-making and implementation. Education and science are the foundations on which national capacity is built and are essential to poverty reduction and improved access to sustainable livelihoods. Institutional and human resource capacity continues to be a major constraint in the successful implementation of Agenda 21 in developing countries and countries with economies in transition.

212. Capacity-building is not only a key outcome of education and science but is an important means for improving policy-making for sustainable development or social capacities. During the years since UNCED, many countries have established structures and processes to guide the planning and implementation of sustainable development, often with a focus on strategy formulation, stakeholder participation and information exchange. There is growing evidence of a broadening in perspective, with many national agendas giving careful consideration to the many critical linkages between social, economic and environmental factors. However, only a few countries have produced comprehensive and integrated national strategies based on a long-term holistic approach. There remains an urgent challenge to strengthen national capacities for managing the economic, social and environmental dimensions of development in an integrated manner.

213. Capacity-building requires special human skills for dealing with organizational change and development, but there is uncertainty about how to develop those skills beyond standard management and administration training. There are clear contradictions between the way donor countries have traditionally operated and the procedures and mechanisms needed for capacity-building. Capacity-building requires a flexible process-driven approach that encourages learning, adaptive management, experimentation, a long-term commitment, the building of human skills and competencies, and a sensitivity to local culture, politics and context. It cannot be programmed in detail from the outset but must involve government, civil society and private actors with social and environmental responsibilities.[54]

214. The trend towards democratic decentralization can be an essential part of the enabling environment for sustainable development and the local implementation of Agenda 21. Decentralization opens up opportunities to link national strategy development with community-based participatory approaches. However, progress depends on political will as well as having the right capacities in place, which means strengthening the capacities of countries to manage the devolution of decision-making and the allocation of resources to lower-level authorities. It also means creating conditions that lead to decentralized policies, institutions and programmes that are more responsive to local realities and the sustainable development needs of local communities, in particular the poor.

215. Some countries have established or strengthened processes and institutions to support the identification of capacity-building requirements through national dialogues and other mechanisms, which have been structured to promote cross-sectoral coordination, participatory monitoring and evaluation of implementation, and identification of instances where capacity is in danger of being lost.

216 Such programmes as the UNDP Capacity 21 programme have mobilized knowledge, good practices and resources to strengthen the capacities of developing countries to implement Agenda 21, focusing on capacities for integrated and participatory approaches to sustainable development. They have sought to strengthen policy analysis and management capacities and to foster the sharing of

knowledge and learning among policy makers and development practitioners. The resources that have been made available for capacity-building, however, have been meagre relative to the growing requirements of developing countries. More resources are needed to support national efforts for capacity-building.

VIII. Strengthening implementation: global partnerships for sustainable development

217. The World Summit on Sustainable Development must reaffirm the goal of sustainable development in terms that can command broad understanding and support. It must also articulate the importance of partnerships between countries and between Governments and civil society. It has been suggested that the outcome of the Summit should be a "global deal", a concept which seeks to reflect the notion of partnership and mutual commitment. The regional preparatory committee for the Summit for the African region has suggested the slogan "People, planet and prosperity" for the Summit, a phrase that recalls the three dimensions of sustainable development. Those summary descriptions of the Summit and its outcome are tools to communicate the purpose of the Summit in a concise way that is widely understood.

218. The purpose of the Summit is not to renegotiate the road map for sustainability provided by Agenda 21 but to strengthen implementation and take account of emerging trends. To do so the Summit must address the phenomenon of globalization and the marginalization of many developing countries. It must also address the lack of progress in poverty eradication, the continued unsustainability of consumption and production patterns in many parts of the world, the weakness of programmatic and institutional mechanisms to effectively integrate the social, the economic and environmental dimensions of development and the lack of financial resources and effective mechanisms for technology transfer. The challenge is to translate Agenda 21 into practical steps focusing on key areas in which faster implementation is required and in which it will have the greatest impact on sustainable development.

219. Practical steps to strengthen implementation could take several forms. First, they could connect the implementation processes for Agenda 21 with the processes that have been established for the implementation of commitments made in other United Nations conferences. This is particularly important for programmes relating to poverty eradication and the elimination of hunger. Second, the commitment to implement Agenda 21 could be given a work timetable spelling out the actions required to achieve specific goals (see box 30). The preparatory process for the Summit may wish to supplement those goals in some areas. Third, the commitment to strengthen implementation could be crystallized in specific initiatives, with clear targets, timetables, monitoring arrangements, coordination and implementation mechanisms, innovative procedures for involving partners, and arrangements for systematic and predictable funding and technology transfer.

220. To address that challenge, the Commission on Sustainable Development acting as the preparatory committee for the Summit may wish to consider 10 clusters around which the practical steps to strengthen implementation could be discussed and agreed, which are detailed below.

A. Making globalization work for sustainable development

221. The notion that globalization has generally been beneficial was questioned in all the regional preparatory meetings for the Summit and has been a major issue of debate in civil society in recent years. The world's poorest countries have generally been left behind and important segments of the population in most countries have not benefited. Globalization must be managed so as to advance economic growth and sustainable development in all countries and spread the benefits more widely. Commitments should be made and initiatives agreed upon aiming at:

- Developing and strengthening coordinated macroeconomic policy management at both the national and international levels that is responsive to the concerns over globalization and sustainable development;
- Removing trade-distorting subsidies and improving access of products and services of developing countries to the markets of developed countries, in particular in sectors in which developing countries have competitive advantage, such as the agricultural and textile sectors;
- Eliminating all exceptions to duty-free and quota-free treatment for exports from least developed countries;
- Assisting developing countries, in particular least developed countries, in their efforts to fully integrate into the world trade system and participate effectively in multilateral trade negotiations;
- Strengthening WTO to ensure that it provides an institutional framework for the realization of an unbiased, rule-based and non-discriminatory international trading system;
- Assisting developing countries in narrowing the digital divide and in harnessing the potential of new information and communication technologies for development.

Box 30
Poverty-related goals of the United Nations Millennium Declaration

By 2015,

- Halve the proportion of people whose income is less than one dollar a day;
- Halve the proportion of people who suffer from hunger;
- Halve the proportion of people unable to reach or afford safe drinking water;
- Ensure that children everywhere, boys and girls alike, will be able to complete a full course of primary schooling and will have equal access to all levels of education;
- Reduce maternal mortality by three quarters and under-five child mortality by two thirds;
- Halt or begin to reverse the spread of HIV/AIDS, the scourge of malaria and other major diseases;

- Provide special assistance to children orphaned by HIV/AIDS;

By 2020:

- Achieve significant improvement in the lives of at least 100 million slum dwellers;
- Promote gender equality and the empowerment of women;
- Develop and implement strategies giving young people everywhere a real chance to find decent and productive work;
- Encourage the pharmaceutical industry to make essential drugs more widely available and affordable for all who need them in developing countries;
- Develop strong partnerships with private sector and civil society organizations in pursuit of development and poverty eradication;
- Ensure that benefits of new technologies, especially ICTs, are available to all;
- Make every effort to ensure the entry into force of the Kyoto Protocol, preferably by the tenth anniversary of UNCED; embark on required reduction in emissions of greenhouse gases;
- Intensify collective efforts for the management, conservation and sustainable development of all types of forests;
- Press for full implementation of the Convention on Biological Diversity and the Convention to Combat Desertification;
- Stop the unsustainable exploitation of water resources by developing water management strategies;
- Intensify cooperation to reduce the number and effects of natural and man-made disasters;
- Ensure free access to information on the human genome sequence;
- Address the special needs of the least developed countries, small island developing States and landlocked developing countries;
- Take special measures to address the challenges of poverty eradication and sustainable development in Africa;
- Establish an open, equitable, rule-based, predictable and non-discriminatory multilateral trading and financial system;
- Implement the enhanced programme of debt relief for the heavily indebted poor countries, and deal comprehensively and effectively with the debt problems of low- and middle-income developing countries through various national and international measures designed to make their debt sustainable in the long term.

B. Poverty eradication and sustainable livelihoods

222. Sustainable development must benefit the poor. There was a common recognition in the ministerial statements and declarations that emanated from the regional preparatory meetings for the Summit that enabling poor people to rise out of poverty and live a decent and fulfilling life is a key challenge of sustainable development. The ministerial statement of the regional preparatory committee for the World Summit on Sustainable Development for the African region stressed that any proposals for the further implementation of Agenda 21 should include priority programmes of special assistance to the poorest people and countries, recognizing the national and international political, social and economic causes that cause poverty.[55]

223. Large numbers of very poor people live in regions with severe ecological stress and their communities are heavily dependent on nature's bounty. The degradation of their natural environment severely compromises their ability to provide for very basic needs. Isolated actions to meet basic needs would not normally constitute a sustainable development programme. Interventions for sustainable eradication of poverty will need to look at community-based development that is sensitive to the natural environment dependency of the local community. Anti-poverty programmes and resource management programmes need to be brought together in a unified framework at all levels from the watershed community to the global. The actions listed below should be seen in that broader context. Commitments should be made and initiatives agreed upon aiming at:

Rural poverty reduction, sustainable agriculture and food security

- Enhancing productivity of land and water resources in agriculture, forestry, artisanal fisheries etc., especially through community-based approaches;
- Improving access to and efficient use of water at the community, watershed and river basin levels;
- Promoting rural development through land tenure modifications that recognize and protect indigenous and common property resource management systems;
- Developing and disseminating safe and affordable technologies for productivity enhancement and ecological management, particularly for ecologically stressed areas with endemic poverty;
- Increasing food availability in areas where it is produced, thus reducing transport costs and excessive dependence on international markets;
- Promoting more comprehensive rural education and extension programmes, directed particularly at the rural poor;
- Strengthening rural infrastructure and credit systems for the rural poor;
- Reversing the declining trend in public sector finance for agricultural research and for sustainable agriculture and rural development;
- Ensuring equal and non-discriminatory access to markets for agricultural products of developing countries;

- Developing multi-stakeholder approaches and public-private cooperation to improve outreach in basic agricultural techniques and knowledge to smallholder farmers and the rural poor;

Urban poverty reduction and sustainable urban settlements development

- Extending secure tenure to the urban poor as a key element in improving access to shelter and basic social services, creating private capital, and increasing employment, credit and income opportunities;
- Designing, financing and implementing solid waste management strategies, with a strong focus on waste minimization and recycling;
- Providing incentives for small-scale waste recycling initiatives in developing countries that could contribute to urban waste management and generate income opportunities;
- Implementing transport strategies reflecting specific national and local conditions so as to improve the efficiency and convenience of transportation, and improving urban air quality and public health;
- Launching a global initiative for lead-free fuels to phase out lead in gasoline, and reducing sulphur and benzene in fuels in order to improve air quality.

C. Changing unsustainable patterns of consumption and production

224. Major improvements in the efficiency of resource use are required in both developed and developing countries. Commitments should be made and initiatives agreed upon aiming at promoting sustainable consumption and production by:

- Achieving a fourfold increase in energy and resource efficiency in developed countries in the next two or three decades and a possible tenfold increase in resource efficiency in developed countries in the long term;
- Enhancing corporate responsibility and accountability through such initiatives as the global compact and the global reporting initiative, and such tools as environmental management accounting and environmental reporting;
- Implementing programmes of assistance to enhance industrial productivity and competitiveness in developing countries and economies in transition, particularly in industries with high employment potential and/or substantial environmental impact;
- Assisting small and medium-sized companies in developing countries and economies in transition, through information and training programmes, to grasp the business opportunities arising from increasing consumer awareness of sustainable consumption;
- Providing incentives to industry and publicly funded research and development institutions to engage in strategic alliances in order to enhance research and development into cleaner production technologies and accelerate the commercialization and diffusion of those technologies;
- Encouraging industry to adopt voluntary initiatives, including certification, such as the ISO 14000 standard;

- Promoting product eco-design, eco-labelling and other transparent, verifiable and non-discriminatory consumer information tools, ensuring that they are not used as disguised trade barriers;[56]
- Improving the role of media and other public information tools in raising consumer awareness on issues related to sustainable consumption and production, in particular on "green" products and services;
- Promoting sustainable consumption through government action, including "green" national accounts, tax reform favouring resource conservation and "green" procurement measures.

D. Promoting health through sustainable development

225. Many health problems can be addressed through poverty eradication and sustainable consumption. WHO, in cooperation with the Government of South Africa, is holding a meeting on health and sustainable development in January 2002 at which further concrete ideas will be developed. Commitments should be made and initiatives agreed upon aiming to reduce environmental problems that pose serious threats to human health and address health from the perspective of enabling people to be effective participants in sustainable development, by:

- Ensuring access for poor people to safe and affordable water and adequate sanitation;
- Maintaining the chemical and biological quality of water resources at acceptable standards;
- Providing financial and technical assistance to developing countries and economies in transition for the phasing out of lead in gasoline and the reduction of sulphur and benzene in fuels and particulates in vehicle exhaust;
- Launching regional programmes to improve indoor air quality through, inter alia, replacing traditional biomass fuels and coal with affordable clean fuels;
- Applying international food and animal husbandry safety standards and guidelines in line with the FAO/WHO Codex Alimentarius Commission.

E. Access to energy and energy efficiency

226. Access to energy can have a profound impact on our ability to achieve sustainable development. In the short run, efforts aimed at rationalizing energy use and encouraging the use and transfer of energy efficient technologies can play a positive role. In the longer term, a greater share of renewable energy in the energy mix, changes in consumption patterns and a greater reliance on advanced energy technologies will be necessary. Commitments should be made and initiatives agreed upon to improve access to clean energy services and increase energy efficiency by:

- Launching a global alliance on renewable energy and efficient clean conventional energy technologies to provide energy services to half of the two billion people, mostly in rural and remote areas in developing countries, who currently have no access to modern energy services;

- Launching a global initiative to encourage the use of natural gas, especially in the urban areas of developing countries;
- Promoting innovative energy financing arrangements in rural areas, including microfinance, revolving funds, cooperative arrangements and incentives in the form of licensing agreements;
- Developing and disseminating renewable energy technologies to increase the share of renewable energy in energy production and consumption and accelerate the development, diffusion and use of energy-efficient technologies;[56]
- Enhancing cooperation between major oil-consuming and oil-producing countries to reduce supply-and-demand instabilities in international markets.

F. Sustainable management of ecosystems and biodiversity

227. The degradation of natural ecosystems may, in some cases, be moving towards critical thresholds beyond which natural resilience is destroyed and recovery becomes difficult or even impossible. A framework of principles for global stewardship is urgently needed to protect the Earth's environment while meeting the social and economic needs and aspirations of all countries and peoples. Commitments should be made and initiatives agreed upon to halt and reverse the current degradation of the natural environment by:

- Improving indicators and data on land degradation and land improvement in order to assess and manage those processes and their impacts;
- Defining intellectual property rights relating to biological resources in order to ensure that benefits derived from the use of genetic material are equitably shared;
- Fully implementing the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, which is currently hampered by the lack of funding and the need for large investments to address land-based sources of pollution;
- Improving the management of marine and coastal protected areas and increasing their number since protected reserves (or no-take areas) have been shown to increase the diversity and productivity of marine organisms;
- Integrating agriculture with other aspects of land management and ecosystem conservation in order to promote both environmental sustainability and agricultural production;
- Improving policies and laws to allow for a more systematic approach to sustainable mountain development, addressing such issues as property rights, economic incentives, political empowerment and the preservation of cultural heritage in an integrated manner;
- Resolving issues of illegal, unregulated and unreported fishing and overcapacity of fishing vessels;

- Enhancing cooperation, coordination and synergies among international organizations and instruments related to forests, in the framework of the Collaborative Partnership on Forests;
- Managing man-made and natural disaster risks, with an emphasis on pre-disaster preparedness, mitigation, vulnerability assessments, adaptation strategies and other measures to reduce human and economic losses.

G. Managing the world's freshwater resources

228. The implementation of strategies for the integrated development, use and management of freshwater resources, both in quantity and quality, is a key to achieving sustainable development. Commitments should be made and initiatives agreed upon to increase the sustainable use and management of freshwater resources by:

- Adopting the river basin and watershed approach to water management, incorporating biodiversity conservation and sustainable management of other resources, such as soils, forests, wetlands and mountains;
- Enacting and enforcing water legislation and strengthening local water management and service capacities;
- Establishing innovative forms of partnerships between national and international private firms, cooperative societies, and governmental and non-governmental organizations for improving the efficient and equitable delivery of water resources to users;
- Applying integrated water resources management principles across shared water resources systems to promote efficient and equitable water allocation and the harmonization of water governance systems;
- Providing development assistance and technical cooperation to build capacities for sustainable water management, distribution and use, and to help local and regional institutions to develop their own solutions and models;
- Expanding countries' capacities to reduce the effects of floods and droughts through better risk and water management, and through better collaboration among organizations that deal with disasters and water management;
- Provide incentives for agricultural enterprises to monitor water use and quality and to improve efficiency and reduce pollution.

H. Finance and technology transfer

229. The mobilization of domestic and foreign financial resources and investment, including technology-related investments, creates the foundation for economic growth and sustainable development. The proposals for action on financing sustainable development outlined below should be considered in conjunction with the outcome of the International Conference on Financing for Development, to be held in Monterrey, Mexico, in March 2002. Commitments should be made and initiatives agreed upon to enhance the availability of financial resources and

technology for the sustainable development of developing countries and economies in transition by:

- Reversing, as a matter of urgency, the downward trend in ODA, with developed countries committing themselves to reaching the United Nations target of 0.7 per cent of GNP as a matter of top priority;
- Raising the effectiveness of ODA, through, for example, linking ODA to the implementation of the development goals, particularly the poverty-related goals agreed in the Millennium Summit and other United Nations forums, such as the Third United Nations Conference on the Least Developed Countries;
- Further improving the coordination of the assistance of donor countries to developing countries and countries with economies in transition to ensure the effective use of limited financial resources, in close cooperation with recipient countries;
- Providing incentives to the private sector to increase the flow of foreign capital to developing countries and economies in transition, particularly those that have not been able to attract such flows;
- Creating a domestic environment that attracts foreign capital, including sound financial institutions and financial and fiscal policies, secure property rights, financial accounting and reporting systems, and insurance markets;
- Further implementing and broadening the HIPC initiative as a major step towards more stable financial governance;
- Strengthening, with the assistance of donors, mechanisms for the development and transfer of environmentally sound technologies, including technical advisory and consultancy services, marketing support, legal advice, research and development and laboratory facilities and services, assistance in project formulation and negotiation, and technology sourcing and match-making;
- Providing incentives to larger companies and transnational corporations to facilitate the access of SMEs to environmentally sound technologies, such as by including and supporting them in production and supply chains;
- Establishing a mechanism to deal with patent issues pertaining to the transfer of biotechnologies to developing countries.

I. Sustainable development initiatives for Africa

230. The ministerial statement adopted at the meeting of the regional preparatory committee for the Summit for the African region noted that, on the tenth anniversary of UNCED, many African countries are confronted by multiple social and economic crises. Most countries in the African region continue to be marginalized and negatively impacted by globalization. Insufficient access for African products to the markets of developed countries has limited the availability of resources for Africa's sustainable development. Africa faces an increasingly serious public health crisis, which also has serious consequences for development. The countries of the African region continue to receive extremely low levels of ODA and foreign private capital. In Africa, long-term international aid programmes have not achieved the

development goals for which they were established.[55] Commitments should be made and initiatives agreed upon to support sustainable development in Africa by:

- Assisting African countries in strengthening regional cooperation;
- Launching new and extensive programmes for capacity-building, technology transfer and the financing of sustainable development, especially in the areas of poverty, hunger, health, environmental protection and resource management;
- Launching an initiative to double agricultural production in Africa within a reasonable time frame;
- Restructuring international aid and establishing appropriate and effective aid levels so as to reduce dependency, promote primary social development objectives, such as clean drinking water, basic literacy and health care, and reinforce efforts to make African economies more stable and competitive;[55]
- Providing new and additional financial resources;
- Formulating new measures for securing affordable access by African countries to appropriate and environmentally sound technologies;
- Improving and expanding the public transport systems of African countries;
- Promoting the development of micro-, small and medium-sized enterprises, with a special focus on agro-industry and with direct participation of the communities involved;
- Supporting the New Partnership for Africa's Development.

J. Strengthening the system of international governance for sustainable development

231. The substantive outcome of the Summit will be the basis for defining a stronger and more coherent system of international governance for sustainable development, including measures for institutional reform.

232. For sustainable development, many of the institutional weaknesses of the current international system arise from a compartmentalized approach, which reflects national decision-making structures and representation in international governing bodies. The result, from the perspective of sustainable development, is overlapping mandates to secretariats and multiple guidelines for operational activities at the field level. Compounding the problem is the complexity of governing structures, differences in membership and different decision-making processes. Coordination among intergovernmental bodies is also complicated by those factors, which are real but surmountable difficulties.

233. The overriding objective when looking at sustainable development governance, i.e., the governing structures and institutions in the economic, social and environmental fields, is to ensure coherence, integrate policies, limit overlap and strengthen implementation. In recent years, much has been done to address those issues. Dialogue between the various structures — at the intergovernmental and the secretariat levels — has improved. Reform programmes have led to improved coordination, notably at the country level. There has been unprecedented

cooperation between the United Nations, the specialized agencies, the World Bank and IMF in following up on the outcome of recent major United Nations conferences and summits. A substantive dialogue has developed among the functional commissions of the Economic and Social Council and the Council itself. The Council has increased its interaction with the specialized agencies, in particular with the Bretton Woods institutions. It is thus becoming an increasingly effective forum for addressing economic, social and environmental issues in an integrated manner. More recently, close cooperation has developed between the United Nations, IMF, the World Bank and WTO in the preparatory process for the International Conference on Financing for Development.

234. Further strengthening of the intergovernmental process in the United Nations system, and of the related secretariat capacities, requires certain fundamental and interdependent elements. Some of those elements mentioned below are drawn from the recommendations made in the regional and subregional preparatory processes for the Summit.

235. There is a need to strengthen the intergovernmental process in the United Nations in the area of sustainable development, taking into account the experience developed, over the last nine years, in the Commission on Sustainable Development. Specifically there is a need to:

- Promote more integrated approaches to the economic, social and environmental aspects of sustainable development in policy formulation and decision-making at the global, regional and national levels, as well as in the policies and practices of international institutions, corporations and other stakeholders;
- Give greater emphasis to the practical implementation of sustainable development through mobilizing action, developing operational guidelines, exchanging experience and monitoring progress;
- Promote greater coherence in the work of the intergovernmental bodies of the organizations of the United Nations system through better interdepartmental coordination at the national level;
- Foster partnerships at all levels, involving Governments, international institutions and other stakeholders, aimed at finding practical solutions and innovative approaches to specific sustainable development issues;
- Promote greater policy coordination among the functional commissions of the Economic and Social Council dealing with different aspects of sustainable development, and develop their dialogue with the Council and the General Assembly.

236. There is a need to improve the system of international environmental governance. The first Global Ministerial Environment Forum/sixth special session of the UNEP Governing Council, held in Malmö, Sweden, in May 2000, agreed that the World Summit on Sustainable Development should review the requirements for a greatly strengthened institutional structure for international environmental governance. In follow-up to that decision in 2001, the UNEP Governing Council established a working group of ministers and their representatives on international environmental governance, mandated to undertake a comprehensive policy-oriented assessment of existing institutional weaknesses, as well as future needs and options

for strengthened governance, including the financing of UNEP. The outcomes of the international environmental governance process are expected to be submitted by the Governing Council of UNEP to the Commission on Sustainable Development acting as the preparatory committee for the Summit.

237. The collective capacity of the United Nations system to support sustainable development needs to be strengthened in a well coordinated and mutually supportive way. To that end, there is a need to:

- Promote action-oriented and flexible inter-secretariat coordination arrangements (thematic task forces, networking, task managers) and joint programming, with a focus on implementation, in the context of the ongoing reform of ACC;
- Enhance practical contributions by United Nations system organizations to national sustainable development efforts, using the experience gained in the United Nations Development Group and UNDAF;
- Ensure that the United Nations system helps developing countries to overcome the fragmented approach to national development and approach social, economic and environmental policies in a more coherent way (see A/56/320, para. 25), while at the same time ensuring full ownership and leadership by the countries;
- Establish closer programmatic links between the United Nations system and regional and subregional organizations, such as the Association of South-East Asian Nations and the Organization of African Unity;
- Establish stronger partnerships with the private sector, local authorities, the scientific community, NGOs and other major groups;
- Build partnerships with non-state actors in developing and developed countries in the broad area of sustainable development, drawing on the coordination segment of the substantive session of 2001 of the Economic and Social Council, in which the Council gave guidance for building partnerships between the United Nations and other stakeholders, as well as the General Assembly, which, at its fifty-sixth session, was also expected to recommend ways to enhance cooperation with non-state actors in the pursuit of the Millennium development goals.

238. The capacity of regional institutions in the area of sustainable development needs to be enhanced. Possible options for consideration include:

- Improved coordination of related activities, key organizations, institutions and stakeholders;
- Further integration of the three dimensions of sustainable development into the work of the regional commissions, which could effectively transform themselves into regional sustainable development commissions;
- Establishing more direct links between the regional commissions and regional development banks, as well as regional economic integration organizations;
- Strengthening the capacity of UNEP regional offices to promote and facilitate the global environmental agenda, including regional implementation of

multilateral environmental agreements and sustainable development policies and programmes;

- Strengthening the capacity of UNEP regional offices to cooperate with other United Nations agencies, including the regional commissions;
- Fuller utilization of the regional commissions to promote regional sustainable development strategies and review regional and national implementation of the outcomes of the World Summit on Sustainable Development.

239. The contribution of international financial and trade institutions to sustainable development needs to be enhanced. On the broader issues of coherence and cooperation, the financing for development process is addressing the role of those institutions in greater detail; in the context of sustainable development, they need to continue efforts to:

- Integrate long-term sustainable development goals into policies, country frameworks and operational guidelines, while ensuring that their activities match the priorities of recipient countries;
- Ensure that the macroeconomic policies and structural reforms promoted by the International Monetary Fund take due account of sustainable development priorities of recipient countries and avoid adverse effects on the environment and social development;
- Take concrete steps towards making governance structures and decision-making procedures more open and transparent, providing for more effective participation of recipient countries;
- Promote the full, effective and equitable participation of all countries in WTO, inter alia, through enhancing the national capacity of developing countries to effectively participate in trade negotiations, with a better understanding of the link between trade and environment and its implications for sustainable development at the national level.

240. The programmatic initiatives that should emerge from the Summit will require a degree of integration across the jurisdictional boundaries of sectoral institutions. They may also require the full involvement of civil society and the private sector. It will therefore be necessary to develop innovative coordination and governance structures for such programmes using the experience of recent developments of that nature in such areas as health and information technology.

241. Technical cooperation plays a critical role in meeting capacity-building needs. The basic guiding principles for capacity development programmes include adequate and sustained levels of funding, fostering country ownership, greater South-South cooperation, a shift to programmatic approaches, a shift to longer-term programming focusing on sustainability, greater emphasis on partnerships and long-term involvement of stakeholders. Within that framework, some of the critical areas for capacity-building include:

- Cross-sectoral approaches to formulating national strategies (or visions) and plans for sustainable development;
- Participatory, multi-stakeholder approaches to dialogue and planning, with a focus on listening and responding to the views of more marginalized and more

vulnerable groups, and more effectively linking local and national-level policies and decision-making;

- Policy analysis and management capacity, including multisector and interdisciplinary analysis of economic, social and environmental policy issues, and the use of multidimensional planning and assessment approaches and tools, including strategic environmental assessment;
- Negotiation and implementation capacity for ensuring effective participation in international environmental and economic agreements and instruments;
- Aid coordination and management capacity, including the capacity to efficiently and effectively manage programme and sector-wide approaches;
- Capacity development in monitoring and evaluation approaches so as to support learning and to improve public sector management and performance, including the use of participatory approaches, sustainable development indicators and complementary qualitative techniques.

Notes

[1] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992*, vol. I, *Resolutions Adopted by the Conference* (United Nations publication, Sales No. E.93.I.8 and Corrigendum), resolution 1, annex II.

[2] Ibid., annex I.

[3] Ibid., annex III.

[4] Including the United Nations Framework Convention on Climate Change (United Nations, *Treaty Series*, vol. 1771, No. 30822); the Convention on Biological Diversity (see United Nations Environment Programme, *Convention on Biological Diversity* (Environmental Law and Institution Programme Activity Centre), June 1992); and the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa (United Nations, *Treaty Series*, vol. 1954, No. 33480).

[5] All the data in this section are based on data contained in the *World Economic and Social Survey* (United Nations publication), various issues.

[6] See *World Population Prospects: The 2000 Revision* (ESA/P/WP.165), United Nations, 2001, and *World Population Projections to 2150* (1998).

[7] See World Bank, *World Development Indicators 2001* (Washington, D.C., 2001).

[8] See UNDP, *Human Development Report 1998* (New York and Oxford, Oxford University Press, 1998).

[9] See World Bank poverty web site, at: www.worldbank.org/poverty/data/trends/index.htm.

[10] See World Bank, *Global Economic Prospects, 2001* (Washington, D.C., 2001).

[11] See World Bank poverty web site, at: www.worldbank.org/poverty/data/trends/mort.htm.

[12] See FAO, *The State of Food Insecurity in the World 2001* (Rome, 2001).

[13] See FAO, op. cit.; and E/CN.17/2000/7.

[14] See WHO, UNICEF and Water Supply and Sanitation Collaborative Council, *Global Water Supply and Sanitation Assessment 2000 Report* (Geneva and New York, 2000).

[15] See E/CN.17/2001/PC/13, para. 10. A recent report by FAO estimates that some 60 million people in 33 countries are currently facing food emergencies of varying intensity caused by civil

strife and/or weather-related disasters; see FAO, *Foodcrops and Shortages* (Rome, 2001), accessible at: http://www.fao.org/WAICENT/faoinfo/economic/giews/english/fs/fstoc.htm.

[16] See Phnom Penh Regional Platform on Sustainable Development for Asia and the Pacific, outcome of the regional preparatory committee meeting held in Phnom Penh from 27 to 29 November 2001.

[17] Estimates by FAO are based on total marine capture fisheries; a potentially important new agreement to address the crisis in world fisheries is the adoption in early 2001 by FAO of a non-binding international plan of action to prevent, deter and eliminate illegal, unregulated and unreported fishing, both on the high seas and within exclusive economic zones.

[18] See FAO, *Global Forest Resources Assessment 2000* (Rome, 2000); and FAO, *State of the World's Forests, 2001* (Rome, 2001).

[19] See, for example, *Status of Coral Reefs of the World: 2000*, Clive Wilkinson, ed. (Queensland, Australia, Australian Institute of Marine Science, 2000).

[20] See Intergovernmental Panel on Climate Change, *Third Assessment Report*, vol. I, *Climate Change 2001: The Scientific Basis* (January 2001).

[21] FAO, *The State of Food Insecurity in the World 2001* (Rome, 2001).

[22] See *Official Records of the Economic and Social Council, 2000, Supplement No. 9* (E/2000/29), chap. I, sect. B, decision 8/4, paras. 3 and 9.

[23] See *Food for All: Can Hunger be Halved?* (Panos, 2001).

[24] Urban poverty indicators are based on local definitions; see United Nations Centre for Human Settlements, *The State of the World's Cities 2001*.

[25] See *World Urbanization Prospects: The 1999 Revision* (United Nations publication, Sales No. 01.XIII.11).

[26] United Nations Population Division figures.

[27] Based on the report of WHO as the task manager for chapter 6 (Protecting and promoting human health) of Agenda 21.

[28] See Rosalyn McKeown, with assistance from Charles A. Hopkins and Regina Rizzi, "Education for sustainable development tool kit" (University of Tennessee, Center for Geography and Environmental Education).

[29] "Factor 4" and "Factor 10" refers to proposals by an informal group of international environment and development experts to improve energy and resource efficiency by a factor of 4 and 10, respectively.

[30] The European Union, for example, succeeded in achieving significant economic growth in the 1990s without major increases in the consumption of fossil fuel, demonstrating that economic growth can be decoupled from environmental pressure; the Organisation for Economic Cooperation and Development (OECD) has further strengthened the concept and put forward decoupling environmental pressures from economic growth as the main challenge.

[31] Ministerial statement of the regional preparatory committee meeting for the World Summit on Sustainable Development for the European region, held at ECE headquarters, Geneva, 24 and 25 September 2001.

[32] See OECD, "Economic instruments for pollution control and natural resources management in OECD countries: a survey" (ENV/EPOC/GEEI(98)35/REV1/FINAL); and International Bank for Reconstruction and Development, *Five Years After Rio: Innovations in Environmental Policy* (London, 1997).

[33] See *Official Records of the Economic and Social Council, 1998, Supplement No. 9* (E/1998/29), chap. I, sect. B, decision 6/2, sect. B.

[34] See http://www.millenniumassessment.org.

[35] FAO has developed a set of internationally accepted methods and tools for integrated planning and management of land resources; see E/CN.17/2001/PC/13.

[36] See General Assembly resolutions 53/24 and 55/189; in addition 2002 has also been declared the International Year of Ecotourism.

[37] United Nations publication, Sales No. E.97.V.10.

[38] For example, the Agreement for the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (1995), which requires two more ratifications to enter into effect; the FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (1993), which has not yet entered into force; the FAO Code of Conduct for Responsible Fisheries (1995); and four other non-binding international plans of action negotiated under FAO auspices in 1999 and 2000.

[39] *Report of the Global Conference on the Sustainable Development of Small Island Developing States, Bridgetown, Barbados, 25 April-6 May 1994* (United Nations publication, Sales No. E.94.I.18 and corrigenda), chap. I, resolution 1, annex II.

[40] United Nations, *Treaty Series*, vol. 1771, No. 30822; and FCCC/CP/1997/L.7/Add.1.

[41] *International Legal Materials*, vol. 26, No. 6 (November 1987), p. 1516.

[42] Ibid., p. 1550.

[43] See Munich Re, *Topics 2000: Annual Review of Natural Catastrophes*.

[44] No single model of a national sustainable development strategy has been agreed; in a number of developing countries, sustainable development principles have already been introduced in existing country-level frameworks, such as national conservation strategies, national environmental action plans, national visions and national agenda 21s.

[45] Including the 1994 Code of Ethics on the International Trade in Chemicals; the 1995 UNEP International Technical Guidelines for Safety in Biotechnology and a number of voluntary codes of conduct for industry and business developed by UNEP; and the 1995 Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (A/51/116, annex II), which provides an international mechanism to complement the 1982 United Nations Convention on the Law of the Sea in its implementation of the provisions governing marine pollution from land-based sources. A number of new protocols to the existing regional seas conventions have also been developed.

[46] Including the Convention on Nuclear Safety (1994); the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (1995); the Convention on the Law of the Non-Navigational Uses of International Watercourses (1997); the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997); the Kyoto Protocol to the United Nations Framework Convention on Climate Change (1997); the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998); the Protocol on Liability and Compensation for Damage Resulting from the Transboundary Movements of Hazardous Wastes and their Disposal (1999) to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal; the Cartagena Protocol on Biosafety (2000); and the Convention on Persistent Organic Pollutants (2001). The Convention on the Protection of the Alps (Alpine Convention) is one of the few examples of a mountain-specific international legally binding instrument.

[47] See "Local Agenda 21 survey" preliminary report prepared by the International Council for Local Environmental Initiatives, September 2001.

[48] See OECD Development Assistance Committee press release dated 23 April 2001.

[49] See report of the Executive Committee on Economic and Social Affairs of the United Nations Secretariat, entitled "Towards a new aid compact" (ECESA/01/1), dated 20 June 2001, table 3; accessible at: www.un.org/esa/coodination/ecesa/ec-statm.htm.

[50] See background paper, No. 19, "Financial flow statistics" (DESA/DSD/2001/19), prepared by the Division for Sustainable Development of the United Nations Secretariat for the ninth session of the Commission on Sustainable Development.

[51] IMF, *International Capital Markets, 2001*, table 3.1.

[52] Based on data accessed at the World Bank web site on 13 December 2001 at: http://www.worldbank.org/hipc/.

[53] See Rio de Janeiro Platform for Action, entitled "On the road to Johannesburg 2002", outcome of the regional preparatory meeting for the Latin America and the Caribbean region for the World Summit on Sustainable Development, Rio de Janeiro, 23 and 24 October 2001.

[54] See Koy Thomson, "IIED European Programme: EC Aid and Sustainable Development" (International Institute for Environment and Development, 1996).

[55] See "Towards a new culture for international partnership"; ministerial statement of the regional preparatory committee for the World Summit on Sustainable Development for the African region, Nairobi, 18 October 2001.

[56] See ministerial statement of the regional preparatory committee for the World Summit on Sustainable Development for the European region, Economic Commission for Europe headquarters, Geneva, 24 and 25 September 2001.